

**FINANCIAL LIBERALISATION AND ECONOMIC GROWTH
IN SUB-SAHARAN AFRICAN COUNTRIES: DILEMMAS AND
PROSPECTS**

BY

NICHOLAS MBAYA ODHIAMBO

*A dissertation presented for the degree of Doctor
in Economics and Management Science at the University of Stellenbosch*



Supervisors

Prof. C.L. McCarthy
Prof. B.W. Smit

University of Stellenbosch

APRIL 2004

DECLARATION

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

ABSTRACT

This dissertation examines the dynamic effects of financial liberalisation on economic growth in three sub-Saharan African countries - Kenya, South Africa and Tanzania. The study was motivated by the current debate on the efficacy of financial liberalisation on the one hand and the painful experience some of these countries have had with the liberalisation of the financial sector on the other.

Three critical questions are asked. Does financial liberalisation contribute positively towards increased economic growth through its influence on savings, financial deepening, and investment efficiency? Is the mechanism through which financial liberalisation affects economic growth in the study countries based on the volume or efficiency of investment? Does financial development, which results from financial liberalisation, Granger cause economic growth?

Cointegration and error-correction techniques are used to investigate empirically the dynamic link between financial liberalisation and economic growth. The error-correction mechanism used is based on the Hendry and Ericson's (1991) general to specific model. In addition, the study uses a dynamic causality test based on the vector error correction model to examine the existence and the direction of causality between financial development and economic growth in the study countries.

The theoretical and empirical underpinning of financial liberalisation as well as the controversies, challenges, and paradoxes that have emerged in the literature since the onset of financial liberalisation in the 1970s are also explored. Finally, the experiences of the study countries with financial liberalisation are reviewed in order to relate these experiences to the presumptions of the theoretical literature on the one hand, and to serve as a precursor to the econometric investigations on the other.

Contrary to the results obtained from some previous studies, the results of this study indicate a strong support for McKinnon's complementarity hypothesis in Kenya, South Africa and Tanzania. The results apply irrespective of whether money demand and savings functions are estimated in static cointegration regression or in the dynamic formulation (error-correction model). This implies that the more attractive financial assets are the greater the incentives to invest in the study countries.

The findings of the study also provide abundant support for the positive impact of financial liberalisation on financial deepening in the study countries. However, the impact of financial liberalisation on investment efficiency is not the same in the three study countries. Although financial liberalisation seems to positively influence investment efficiency in Kenya, it fails to influence in a robust manner the level of investment efficiency in South Africa and Tanzania.

The results on the long-run causality between financial development and economic growth indicate that the direction of causality is sensitive to the choice of measurement for financial development. On balance, a demand-following response is found to be stronger in South Africa and Kenya, while a supply-leading response is found to be stronger in Tanzania.

In conclusion, it is worth mentioning that, while the positive role of financial liberalisation on economic growth through its influence on savings, financial deepening and investment efficiency is overwhelming, the clarity and strength of this beneficial role differs from country to country and over time.

OPSOMMING

Die proefskrif ondersoek die dinamiese gevolge van finansiële liberalisasering op ekonomiese groei in drie lande in Sub-Sahara Afrika, naamlik Kenia, Suid-Afrika en Tanzanië. Die aansporing vir die studie spruit uit die huidige debat oor die werkzaamheid van finansiële liberalisering enersyds en andersyds die pynlike ervaring van sommige lande wat hierdie proses in hul finansiële sektor deurloop het.

Drie vrae word gestel. Dra finansiële liberalisering by tot vinniger ekonomiese groei deur die invloed wat dit het op besparing, finansiële verdieping en die doeltreffendheid van investering? Is die meganisme waardeur finansiële liberalisering sy invloed op ekonomiese groei in die drie gemelde lande uitoefen op die volume of doeltreffendheid van investering gebaseer? Is finansiële ontwikkeling as gevolg van finansiële liberalisering 'n Granger-oorsaak van ekonomiese groei?

Ko-integrasie en fout-korrigeringstegnieke word gebruik om empiries die dinamiese skakel tussen finansiële liberalisering en ekonomiese groei te ontleed. Die fout-korrigeringstegniek is gebaseer op Hendry en Ericson (1991) se algemene-tot-spesifieke model. Verder, maak die studie ook gebruik van 'n dinamiese oorsaaklikheidstoets, gebaseer op die vektorfout-korrigeringsmodel, om die bestaan en rigting van oorsaaklikheid tussen finansiële ontwikkeling en ekonomiese groei in die drie studie-lande te ondersoek.

Die teoretiese en empiriese onderbou van finansiële liberalisering word ondersoek en so ook die dispute, uitdagings en paradokse wat in die literatuur verskyn het sedert the aanvang van finansiële liberalisering in the jare sewentig. Laastens, word die ervaring van die studie-kande met finansiële liberalisering in oorsig geneem om sodoende hierdie ervaring met die

vertrekpunte van die teoretiese literatuur enersyds te verbind en andersyds as die inleiding tot die ekonometriese ontledings te dien.

In teenstelling met die resultate wat in sekere ander studies bereik is, dui die resultate van hierdie studie op sterk steun vir McKinnon se komplementariteits hipotese in Kenia, Suid-Afrika en Tanzanië. Dit geld ongeag of die vraag na geld en die besparingsfunksies geskat word in statiese ko-integrasie regressie of deur dinamiese formulering (fout-korrigeringsmodel). Dit impliseer dat hoe aantrekliker finansiële bates is hoe groter is die aansporing om in die studie-lande te investeer.

Die bevindings van die studie bevestig ook voldoende die positiewe invloed van finansiële liberalisering op finansiële verdieping in die studie-lande. Die effek op die doeltreffendheid van investering is egter nie dieselfde in die drie lande nie. Terwyl finansiële liberalisering 'n positiewe invloed op die doeltreffendheid van investering in Kenia het, het dit geen robuuste invloed op die doeltreffendheid van investering in Suid-Afrika en Tanzanië nie.

Die resultate van die langtermyn-oorsaaklikheid tussen finansiële ontwikkeling en ekonomiese groei dui daarop dat die rigting van oorsaaklikheid gevoelig is vir die maatstaf wat gebruik word om finansiële ontwikkeling te meet. 'n Vraag-geïnisieerde reaksie is sterker in Suid-Afrika en Kenia, terwyl 'n aanbod-geleide reaksie sterker in Tanzanië is.

Terwyl die positiewe rol van finansiële liberalisering op ekonomiese groei deur middel van die invloed op besparings, finansiële verdieping en investeringsdoeltreffendheid oorweldigend is, verskil die duidelikheid en sterkte van hierdie rol van land tot land.

DEDICATION

This dissertation is dedicated to: Uncle George Omburo (PhD) of Philadelphia, USA; Uncle Joseph Muga of California, USA; Brother Paul Otieno Mbaya of New Jersey, USA; Mama Mary Opiyo Omburo of Kochia, Kenya; Mama Anjelina Ong'olla of Marindi, Kenya; Mama Felix (Caroline Mbuga) of Nairobi, Kenya; and Uncle Ken Omburo of Mombasa, Kenya.

ACKNOWLEDGEMENT

There are a number of people who have contributed to the motivation for and the production of this thesis, without whose influence, this work would never have materialised. However, I will only mention people and institutions without whose sustained support, guidance and encouragement, this thesis would never have been completed.

I would like to record my indebtedness to my supervisors Prof. C.L. McCarthy and Prof. B.W. Smit for their guidance, support, and for their patience, which had no limits.

Indeed, I owe special thanks to my employer, the Ministry of Finance and Planning (Treasury) for granting me a generous study leave to pursue this important course, and for the subsistence financial support. In particular, I wish to thank Mr. David Nalo, the former Head of Macro-Planning Department and Mr. Martin Oduor Otieno, the former Permanent Secretary, Ministry of Finance and Planning, who stood with me firmly all along throughout this course.

I would be being unfair if I failed to give thanks to my parents, my wife, and all my relatives who were always there throughout my studies, steadfast in their support and encouragement.

This study was made possible by the financial support from African Economic Research Consortium (AERC) Nairobi and the University of Stellenbosch, South Africa to whom I remain indebted.

Notwithstanding the contribution of the aforementioned individuals and institutions, the responsibility for all the views, and any shortcoming of this study, is entirely mine, and should not be attributed to any of the abovementioned individuals or organisations.

TABLE OF CONTENTS

	PAGE
DECLARATION	(ii)
ACKNOWLEDGEMENT	(iii)
DEDICATION	(iv)
ABSTRACT.....	(v)

**CHAPTER ONE
INTRODUCTION TO THE STUDY**

1.1	Background	1
1.2	Objectives and Hypotheses of the Study.....	4
1.2.1	Objectives of the Study	4
1.2.2	Hypotheses	5
1.3	Significance of the Study	6
1.4	Motivation for Choosing the Countries Selected.....	8
1.5	A Note on Flexible Interest Rate as a Proxy for Financial Liberalisation	9
1.6	Organisation of the Study	10

CHAPTER TWO

A THEORETICAL PERSPECTIVE ON THE ORIGIN OF FINANCIAL LIBERALISATION

2.	Introduction.....	11
2.1.	Financial Liberalisation, Financial Repression and Financial Restraints: Conceptual Issues.....	11
2.2.	The Genesis of Financial Repression.....	13
2.2.1.	The Disadvantages of Financial Repression.....	14
2.3	The Case for Financial Liberalisation.....	16
2.3.1.	The Theory of Financial Liberalisation According to McKinnon-Shaw.....	17
2.3.2.	McKinnon's Complementary Hypothesis.....	18
2.3.3.	Shaw's Dept Intermediation Approach to Financial Liberalisation Hypothesis.....	20
2.3.4.	The Role of Financial Liberalisation.....	21
2.3.5.	Preconditions for Financial Liberalisation.....	23
2.3.6.	The Pace of Financial Liberalisation.....	24
2.3.7.	Sequencing of Financial Liberalisation.....	25
2.4	The Case for Financial Restraints.....	28
2.4.1.	Various Forms of Financial Restraints.....	29
2.4.1.1.	Interest Rates Restraints.....	30
2.4.1.2.	Restraints on Reserve and Liquidity Requirements.....	32
2.4.1.3.	Restraints on Capital Adequacy Requirements.....	33
2.4.1.4.	Restraints on Capital Inflows.....	35
2.5.	Taxonomy of Financial Systems: Bank-Based Versus Market-Based	36
2.5.1.	Bank-Based Financial System.....	37

2.5.2.	Market-Based Financial System.....	38
2.6.	Concluding Remarks.....	39

CHAPTER 3

THE CHALLENGES OF FINANCIAL LIBERALISATION - A POST MCKINNON-SHAW SYNTHESIS

3.	Introduction.....	41
3.1.	Controversies over the Role of Financial Liberalisation.....	41
3.1.1	The Role of Interest Rates on Savings.....	42
3.1.2.	Determinants of Savings other than Interest Rate Reforms.....	44
3.1.3.	The Neo-Structuralist Critique.....	49
3.1.4.	The Keynesian Critique.....	51
3.1.5.	The Post-Keynesian Critique.....	51
3.1.5.1.	Endogeneity Versus Exogeneity of bank Credit.....	52
3.1.5.2.	Financial Liberalisation and Stagflation Argument.....	53
3.1.6.	The Stiglitz and Weiss Critique.....	55
3.1.7.	The Role of the Stock Market in the Process of Financial Liberalisation.....	56
3.2.	The Paradox of Insolvency.....	58
3.3.	Interest Rate Policy Debate-High Versus Low Interest Rates.....	59
3.4.	Other Challenges on the Efficacy of Financial Liberalisation Policy.....	61
3.4.1.	Financial Liberalisation and Fiscal Deficit Explosion.....	61
3.4.2.	Financial Liberalisation and Inflation.....	62

3.5.	Summary and Concluding Remarks.....	63
------	-------------------------------------	----

CHAPTER 4

FINANCIAL LIBERALISATION AND OTHER MACRO-ECONOMIC VARIABLES - A DYNAMIC LINKAGE

4.	Introduction.....	68
4.1.	Money and Physical Capital.....	68
4.1.1.	McKinnon's Complementarity Hypothesis.....	68
4.1.2.	McKinnon Conduit Effect.....	70
4.1.3.	McKinnon's Investment Function.....	71
4.1.4.	Some Empirical Studies on McKinnon's Complementarity Hypothesis.....	73
4.2.	Financial Liberalisation and Savings.....	74
4.2.1.	Savings and Interest Rate -Some Empirical Evidence.....	75
4.3.	Financial Liberalisation and the Efficiency of Investment.....	83
4.4.	Financial Liberalisation and Financial Deepening.....	90
4.5.	Financial Liberalisation and Economic Growth.....	92
4.6.	Financial Development and Economic Growth? A Controversy	94
4.6.1.	Supply-Leading versus Demand-Following Response.....	95
4.6.2.	Demand-Following Supply Response.....	96
4.6.3.	Supply-leading Response.....	97
4.6.4.	Selected Empirical Literature.....	99
4.7.	The Effect of Financial Liberalisation During Stabilisation Process - A Post McKinnon (1973) and Shaw (1973)Hypothese... ..	103

4.8.	Concluding Remarks.....	106
------	-------------------------	-----

CHAPTER 5

FINANCIAL LIBERALISATION IN KENYA

5.	Introduction.....	109
5.1.	The Origin of Financial Liberalisation in Kenya.....	110
5.2.	The Origin of Interest Rate Liberalisation in Kenya.....	112
5.3	Interest Rates Behaviour Before and After Liberalisation.....	113
5.3.1.	Interest Rates Behaviour Prior to the 1991 Interest Rate Liberalisation.....	114
5.3.2.	Interest Rates Behaviour After the 1991 Interest Rate Liberalisation.....	117
5.3.3.	Why Interest Rates Remain High in Kenya.....	120
5.4	Financial Sector Reforms and Development in Kenya.....	123
5.4.1.	The Central Bank Reforms.....	123
5.4.2.	Banking Sector Reforms and Development	126
5.4.3.	Non-Bank Financial Intermediaries in Kenya.....	129
5.4.4.	Financial Market Reforms and Development	130
5.4.5.	Foreign Exchange Reforms.....	136
5.5	Post-Financial Liberalisation Challenges.....	138
5.5.1.	The Fall of Non-Bank Financial Institutions in Kenya.....	139
5.5.2.	The 'Banking Distress' in the 1980s and 1990s.....	140
5.5.3.	Spreads Between Lending and Deposit Rates.....	144
5.5.4.	Post-Financial Liberalisation Savings and Investment Trends.....	145
5.5.5.	Financial Liberalisation, Financial Depth and Economic Growth	147
5.6.	Sequencing of Financial Liberalisation in Kenya (1985-2001).....	149
5.7.	Concluding Remarks.....	158

CHAPTER 6 FINANCIAL LIBERALISATION IN SOUTH AFRICA

6.	Introduction.....	162
6.1.	An Overview of Financial Liberalisation in South Africa.....	163
6.2.	Interest Rate Liberalisation in South Africa.....	164
6.3	Interest Rates Behaviour in South Africa Before and After Liberalisation	165
6.3.1.	Interest Rates Behaviour Prior to the 1980 Interest Rate Liberalisation.....	165
6.3.2.	Interest Rates Behaviour After Interest Rate Liberalisation.....	169
6.4	Financial Sector Reforms and Development in South Africa.....	172
6.4.1.	Central Bank Reforms	173
6.4.2.	Banking Sector Reforms and Development in South Africa.....	179
6.4.3.	Other Financial Intermediaries in South Africa.....	182
6.4.4.	Financial Market Reforms and Development in South Africa.....	184
6.5.	Foreign Exchange Reforms	188
6.6.	Post-Financial Liberalisation Challenges.....	190
6.6.1.	Post-Financial Liberalisation Inflation Trends.....	191
6.6.2.	Post-Financial Liberalisation Exchange Rate Trends.....	192
6.6.3.	Spreads Between Deposit and Loans Rates	193
6.6.4.	Post-Financial Liberalisation Savings and Investment Trends.....	195
6.6.5.	Financial Liberalisation, Financial Deepening and Economic Growth	197
6.7.	Sequencing of Financial Liberalisation in South africa	199
6.7.1.	Pre-Financial Liberalisation Policies.....	199
6.7.2.	Post-Financial Liberalisation Policies.....	202
6.8.	Concluding Remarks.....	209

CHAPTER 7

FINANCIAL LIBERALISATION IN TANZANIA

7.	Introduction.....	213
7.1.	The Origin of Financial Liberalisation in Tanzania.....	213
7.2.	The Origin of Interest Rate Liberalisation in Tanzania.....	217
7.3	Interest Rates Behaviour Before and After Liberalisation	219
7.3.1.	Interest Rates Behaviour Before Interest Rate Liberalisation (1961-1992).....	219
7.3.2.	Interest Rates Behaviour After Interest Rate Liberalisation.....	223
7.4	Financial Sector Reforms and Development in Tanzania.....	226
7.4.1.	Central Bank Reforms.....	227
7.4.2.	The Banking Sector Reforms and Development in Tanzania.....	230
7.4.3.	Other Financial Intermediaries in Tanzania.....	232
7.4.4.	Financial Market Reforms and Development in Tanzania.....	234
7.4.5.	Foreign Exchange Reforms.....	237
7.5	Post-Financial Liberalisation Challenges.....	239
7.5.1.	Spreads Between Lending and Deposit Interest Rates.....	239
7.5.2.	Post-Financial Liberalisation Exchange Rate Trends in Tanzania....	241
7.5.3.	Financial Liberalisation and Credit Allocation.....	245
7.5.4.	Post-Financial Liberalisation Savings and Investment Trends.....	247
7.5.5.	Financial Liberalisation, Financial Depth and Economic Growth in Tanzania.....	248
7.6.	Sequencing of Financial Reforms in Tanzania.....	251
7.7.	Concluding Remarks.....	256

CHAPTER EIGHT

ESTIMATION TECHNIQUES AND EMPIRICAL MODEL SPECIFICATION

8.	Introduction.....	259
8.1.	Theoretical and Empirical Model Specification.....	259
8.1.1.	Financial Liberalisation, Savings and Economic Development....	259
8.1.1.1.	Estimations of McKinnon's Complementarity Hypothesis.....	261
8.1.1.2.	The Model Used in the Current Study.....	267
8.1.1.2.1.	Theoretical Background of the Model.....	267
8.1.1.2.2.	Derivation of the Empirical Model.....	269
8.1.2.	Financial Liberalisation and Financial Deepening.....	273
8.1.2.1	Derivation of Financial Deepening Model	273
8.1.2.2.	The Empirical Model Used in the Current Study.....	276
8.1.3.	Financial Liberalisation and Investment Efficiency.....	277
8.1.3.1.	Derivation of the Model.....	277
8.1.3.2.	Empirical Model Specification.....	278
8.1.4.	Financial Development and Economic Growth.....	280
8.1.4.1.	Empirical Model Specification.....	281
8.2.	Estimation Techniques.....	283
8.2.1.	Introduction.....	283
8.2.2.	A Summary of Empirical Model Used in the Study.....	283
8.2.3.	Estimation Technique for Modules One, Two and Three.....	285
8.2.3.1.	Unit Root Tests.....	285
8.2.3.1.1.	Dickey-Fuller (DF) Tests.....	285
8.2.3.1.2.	The Augmented-Dickey Fuller (ADF)	286
8.2.3.1.3.	Sarghan-Bhargava-Durbin Watson Test for Stationarity (SBDW)	287
8.2.3.2.	Cointegration Analysis.....	287
8.2.3.2.1.	Engle-Granger (1987) Two-Step Cointegration Method.....	288

8.2.3.2.2.	SBDW Test For Cointegration.....	289
8.2.3.2.3.	Johansen-Juselius (JJ) Cointegration Method.....	290
8.2.3.2.4.	Trace Test and Maximum Eigenvalue Test.....	294
8.2.3.3.	Error-Correction Modelling of Models One, Two and Three.....	295
8.2.4.	Estimation Technique For model 4: Financial Development and Economic Growth Model.....	298
8.2.4.1.	Hsiao's Version of the Granger Causality method.....	299
8.2.4.2.	The Estimation Technique used in the Study.....	301
8.2.4.2.1.	Causality Test Based On Cointegration and Error Correction Model.....	301
8.3.	Data Source and Definitions of Variables.....	303
8.3.1.	Data Source.....	303
8.3.2.	Definitions of Variables.....	303
8.3.2.1.	Definitions of Financial Development and Economic Growth Variables.....	303
8.3.2.2.	Definitions of Other Variables.....	305

CHAPTER NINE

ECONOMIC ANALYSIS AND EMPIRICAL FINDINGS

9.	Introduction.....	308
9.1.	Empirical Analysis of McKinnon's Complementarity Hypothesis.....	308
9.1.1.	Stationarity Test.....	308
9.1.2.	Cointegration Analysis.....	311
9.1.2.1.	Johansen and Juselius Approach.....	311
9.1.2.2.	Residual Based Cointegration-Engle-Granger Two-Step Method.....	313

9.1.3.	Error-correction Modelling of McKinnon's Complementarity Hypothesis.....	314
9.1.3.1.	Overparameterised (General) Model for Money Demand Function.....	314
9.1.3.1.1.	Preferred Model for Money Demand Functions.....	314
9.1.3.1.2.	Diagnostic Tests.....	316
9.1.3.2.	Overparameterised (General) Model for Savings Function.....	317
9.1.3.2.1.	Preferred Model for Savings Function.....	318
9.1.3.2.2.	Diagnostic Test Statistics for Savings Model.....	319
9.1.4.	Analysis of the Results of McKinnon's Complementarity Hypothesis.....	320
9.2.	Empirical Analysis of Financial Deepening Model.....	323
9.2.1.	Stationarity Test.....	323
9.2.2.	Cointegration Analysis.....	324
9.2.2.1.	Johansen-Juselius (ML) Cointegration Test for Financial Deepening.....	325
9.2.2.2.	Residual Based Cointegration-Engle-Granger Two-Step Method.....	326
9.2.3.	Error-correction Modelling: Financial Deepening Equation.....	327
9.2.3.1.	Overparameterised (General) Model For Financial Deepening Equation	327
9.2.3.2.	Preferred Model For Financial Deepening Test.....	327
9.2.3.3.	Diagnostic Tests.....	329
9.2.4.	Analysis of Financial Deepening Model.....	330
9.3.	Empirical Analysis of Investment Efficiency Model.....	331
9.3.1.	Stationarity Test.....	331

9.3.2.	Cointegration Test.....	332
9.3.2.1.	Johansen and Juselius Approach.....	332
9.3.2.2.	Cointegration Analysis-Multivariate (Engle-Granger Two- Step method).....	334
9.3.3.	Error-correction Modelling of Investment Efficiency (IOCR) Equation.....	335
9.3.3.1.	Overparameterised Error-correction Model for (IOCR) Function.....	335
9.3.3.2.	Preferred (Parsimonious) Model for DIOCR Function.....	336
9.3.3.3.	Diagnostic Test Statistics for IOCR Equation.....	337
9.3.4.	Analysis of the Investment Efficiency Results.....	338
9.4.	Empirical Analysis of the long-run causality test.....	339
9.4.1.	Stationarity Tests.....	340
9.4.2.	Cointegration Analysis.....	341
9.4.2.1.	Johansen-Juselius Maximum Likelihood Cointegration Tests.....	342
9.4.2.2.	Cointegration Analysis-Bivariate (Engle-Granger Two- Step Method).....	344
9.4.3.	Results of Causality Test based on Error-correction-Model....	345
9.4.3.1.	Causality Test between DLy/N and DLM_2/GDP	349
9.4.3.2.	Causality Test between DLy/N and $DLCC/M_1$	350
9.4.3.3.	Causality Test between DLy/N and $DLDCP/GDP$	351
9.4.3.4.	Summary of Causality Test.....	352
9.4.4.	Analysis of Long-run Causality Test.....	353

CHAPTER 10
CONCLUSION AND POLICY IMPLICATIONS

10. Introduction.....355

10.1. Summary of the Study.....355

10.2. Summary of Empirical Findings and Conclusions.....357

10.3. Conclusions and Policy Implications.....360

10.4. Limitations of the Study.....365

10.5. Areas for Further Research.....367

BIBLIOGRAPHY.....369

APPENDICES.....405

LIST OF TABLES

Text Tables

Table 5.1	Trends of Selected Interest Rates in Kenya Between 1969-1990. ...	114
Table 5.2	Trends of Selected Interest rates in Kenya (1991-2001).....	118
Table 6.1	Trends of Selected Interest Rates in South Africa Between (1969-1980).....	166
Table 6.2	Trends of Selected Interest Rates in South Africa Between 1980-2001.....	169
Table 6.3	Exchange Rate Trends in South Africa 1980-1998 (Rand Per Unit US Dollar).....	193
Table 7.1	Trends of Selected Interest Rates in Tanzania (1967-1985).....	221
Table 7.2	Trends of Selected Interest Rates in Tanzania (1986-92).....	221
Table 7.3	Trends of Selected Interest Rates in Tanzania (1993-2001).....	224
Table 7.4	Trends of Credit Allocations to the Private Sector in Tanzania (1986-1998).....	245
Table 9.1	Stationarity Tests of all Variables at Levels.....	309
Table 9.2	Stationarity Tests of Variables on First Difference.....	310
Table 9.3	Johansen-Juselius Maximum Likelihood Cointegration Tests....	311
Table 9.4	Engle-Granger Cointegration Test For Money Demand Function (Multivariate).....	313
Table 9.5	Engle-Granger Cointegration Test For Savings Function (Multivariate).....	313
Table 9.6	Modelling Equation (7) DM/P by OLS.....	315
Table 9.7	Modelling of Savings Function.....	318

Table 9.8	Stationarity Tests of all Variables at Levels.....	323
Table 9.9	Stationarity Tests of Variables on First Difference.....	324
Table 9.10	Johansen-Juselius Maximum Likelihood Cointegration Tests....	325
Table 9.11	Engle-Granger Cointegration Test For Financial Deepening Function (Multivariate).....	326
Table 9.12	Modelling Equation (7) DLm by OLS.....	328
Table 9.13	Stationarity Tests of all Variables at Levels.....	331
Table 9.14	Stationarity Tests of Variables on First Difference.....	332
Table 9.15	Johansen-Juselius Maximum Likelihood Cointegration Tests....	333
Table 9.16	Engle-Granger Cointegration Test for Investment Efficiency Model (Multivariate).....	334
Table 9.17	Modelling Equation (7) DIOCR by OLS.....	336
Table 9.18	Stationarity Tests of all Variables at Levels.....	340
Table 9.19	Stationarity Tests on First Difference.....	341
Table 9.20	Maximum Likelihood Cointegration Test: KENYA:	342
Table 9.21	Maximum Likelihood Cointegration Test: SOUTH AFRICA:.....	343
Table 9.22	Maximum Likelihood Cointegration Test: TANZANIA:....	343
Table 9.23	Residual Based Cointegration Test (Bi-variate) - KENYA:.....	344
Table 9.24	Residual Based Cointegration Test (Bi-variate) - SOUTH AFRICA :	345
Table 9.25	Residual Based Cointegration Test (Bi-variate) - TANZANIA:....	345
Table 9.26	Causality Test Between DLy/N and DLM2/GDP	346

Table 9.27 Causality Test Between DLy/N and DLCC/M1.....347

Table 9.28 Causality Test Between DLy/N and DLDCP/GDP.....348

Table 9.29 Summary of Causality Tests.....352

Appendix Tables

Appendix 1:	Error-correction Model for Money Demand Function - General Model	405
Appendix 2:	Error-correction Model for Savings Function (Sd/Y) – General Model	408
Appendix 3:	Error-correction Model for Financial Deepening Function – General Model	411
Appendix 4:	Error-correction Model for Investment Efficiency - General Model	414
Appendix 5:	KENYA: Selected Macroeconomic Data	417
Appendix 6:	SOUTH AFRICA: Selected Macroeconomic Data	418
Appendix 7:	TANZANIA: Selected Macroeconomic Data.....	419

LIST OF FIGURES

Figure 5.1:	Trends of Interest Rates During the Period 1980-1990.....	117
Figure 5.2:	Trends of Interest Rates During the Period 1989-2001 as Compared to 1980.....	120
Figure 5.3:	The Spread Between Deposit and Lending Rates in Kenya During 1995-2001 as Compared to 1980.....	145
Figure 5.4:	Savings and Investment Trends in Kenya.....	146
Figure 5.5:	The Trend of M2/GDP Ratio in Kenya Between 1982 and 2000.....	148
Figure 5.6:	The Trend of Annual GDP Growth Rate in Kenya During 1991-2000 as Compared to 1980.....	149
Figure 6.1:	Trends of Interest Rates and Inflation Rate in South Africa (1969-1980).....	168
Figure 6.2:	Trends of Interest Rates and the Inflation Rate in South Africa (1980-2000).....	172
Figure 6.3:	Inflation Rate Trend in South Africa Between 1982 and 2002 as Compared to 1980.....	192
Figure 6.4:	The Spread Between Lending and Deposit Rates Between 1982 and 2000 as Compared to 1980.....	195
Figure 6.5:	Trends of Gross Domestic Saving (% GDP) and Gross Domestic Investment (% GDP) in South Africa Between 1989 and 1998 as Compared to 1980.....	197
Figure 6.6:	The Trend of M2/GDP Ratio in South Africa Between 1972 and 2000.....	198
Figure 6.7:	The Trend of Annual Real GDP Growth Rate During 1991-2000 Period as Compared to 1980.....	199
Figure 7.1:	Trends of Selected Interest Rates Between 1986-1992	

	as Compared to 1980.....	223
Figure 7.2:	Trends of Interest Rates in Tanzania Between 1993-2001.....	226
Figure 7.3:	The Spread Between Deposit and Lending Rates in Tanzania During 1995-2001 as Compared to 1980.....	240
Figure 7.4:	The Real effective Exchange Rate of Tanzanian Shilling Between 1994/95-1998/99.....	244
Figure 7.5:	The Nominal Exchange Rate of Tanzanian Shilling Between 1982-2000 (Period Average).....	244
Figure 7.6:	Trends of Gross Domestic Saving and Gross Domestic Investment as a % of GDP Between 1991-2000.....	248
Figure 7.7:	The Trend of M2/GDP Ratio in Tanzania Between 1972 and 2000.....	250
Figure 7.8:	The Trend of Annual Real GDP Growth in Tanzania During 1991-2000 Period as Compared to 1980.....	250

LIST OF ACRONYMS AND ABBREVIATIONS

ABSA	Amalgamated Bank of South Africa
ADF	Augmented Dickey-Fuller
AERC	African Economic Research Consortium
ATMs	Automated Teller Machines
ARCH	Autoregressive Conditional Heteroscedasticity
ADF	Augmented Dickey-Fuller
AR	Autocorrelation test
BMA	Bond Market Association
BESA	Bond Exchange of South Africa
BER	Bureau of Economic Research
BOT	Bank of Tanzania
CBK	Central Bank of Kenya
COMESA	Common Market for Eastern and Southern Africa
CRDB	Co-operative and Rural Development Bank
CMSA	Capital Market and Securities Authority
DBSA	Development Bank of Southern Africa
DSE	Dar-es-Salaam Stock Exchange
DBCH	Dar-es-Salaam Bankers Clearing House
DF	Dickey Fuller
EACB	East African Currency Board
FDS	Fixed Deposit Scheme
FPE	Final Prediction Error
GDI	Gross Domestic Investment
GDP	Gross Domestic Product
GDS	Gross Domestic Savings
IMF	International Monetary Fund
IFS	International Finance Statistics

IFEM	Inter-bank Foreign Exchange Market
JSE	Johannesburg Stock Exchange
KPTC	Kenya Post and Telecommunication Company
KPOSB	Kenya Post Office Savings Bank
LDCs	Less Developed Countries
MFCs	Mortgage Finance Companies
NBFIs	Non-Bank Financial Institutions
NHFC	National Housing Finance Corporation
NGOs	Non-Governmental Organisations
NFC	National Finance Corporation
NBC	National Bank of Commerce
NMB	National Microfinance Bank
NFP	National Provident Fund
NIC	National Insurance Corporation
OLS	Ordinary Least Squares
PB	Premium Bond
PSA	Premium Savings Account
PBZ	Peoples Bank of Zanzibar
PPF	Parastatal Pension Fund
PP	Philips-Perron
ROSCAs	Rotating Savings and Credit Associations
RHLF	Rural Housing Loan Fund
REPOs	Repurchase Agreement
SARB	South African Reserve Bank
SADC	South Africa Development Corporation
SAFEX	South Africa Futures Exchange
SBDW	Sargan Bhargava Durbin Watson
WV	Wealth View

CHAPTER ONE

INTRODUCTION

1.1 Background

Since the widespread acceptance of the ideal of financial liberalisation, many developing countries have implemented far-reaching financial reforms. However, the experience of these countries with regard to financial liberalisation has been predominantly painful. Whether financial liberalisation does indeed impact positively on savings, financial deepening, investment efficiency, and economic growth, remains an issue of empirical investigation.

Previous empirical studies on this topic have concentrated mainly on Asia and Latin America, affording sub-Saharan African (SSA) countries very little coverage or no coverage at all. Where such studies have been undertaken, findings on the role played by high interest rates and their effect on savings, financial deepening, investment efficiency, and economic growth are at best inconclusive. For instance, several studies have found no direct relationship between the level of savings and the interest rate. Yet, there has been enormous support for the position that even though interest rates might not significantly affect the savings rate, they do affect the form in which savings are held.

In the current study, attempts are made to investigate the dynamic impact of financial liberalisation on economic growth through savings, financial deepening, and investment efficiency in three sub-Saharan African countries. Although several versions of the financial liberalisation hypothesis are encountered in the literature, the one put forward by Ronald McKinnon is adopted here because of its succinctness and amenability to empirical verification. Throughout this study, the interest rate has been used in empirical

analysis as a proxy for financial liberalisation. However, the bulk of the study has incorporated all other aspects of financial liberalisation.

In an attempt to empirically examine the dynamic role of financial liberalisation in economic growth, four explicit models are used. The first model is the McKinnon complementarity hypothesis model, which links money and physical capital in economic development. This is followed by the financial deepening model, and thereafter by the investment efficiency model. Finally, the causality model is used to examine the long-run causal relationship between financial development and economic growth. The Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF), and Sargan Bhargava Durbin Watson (SBDW) tests are used to test for the stationarity of the variables used in this study, while the two-stage residual-based test of Engle-Granger (1987) and the maximum likelihood cointegration test based on the Johansen-Juselius model are used to test for the existence of cointegration and the number of cointegrating vectors, respectively. An error-correction mechanism is used to estimate the dynamic models employed in this study. The error-correction procedure used is based on Hendry and Ericsson's (1991) general-to-specific procedure.

Three countries have been incorporated in this study. These are Kenya, South Africa and Tanzania. The three countries represent a modest cross-section of the general financial structure prevalent in many sub-Saharan African countries. In South Africa, for example, a more rapid financial liberalisation strategy was adopted following the De Kock Commission's reports of 1978 and 1985. Controls on interest rates and credit were virtually removed in the 1980s, and banks' liquidity ratios substantially reduced between 1983 and 1985. The register of cooperation, which limited competition among banks, was also eliminated in 1983. Exchange controls on non-residents were eliminated in March 1995, while those on residents were relaxed in 1995. Although the monetary authorities expected interest rates to be positive in real terms after their deregulation, they generally remained negative. A distinct positive real interest rate was only recorded in the

1990s. By the standards of developing countries, South Africa is considered to have one of the most developed and sophisticated financial systems among SSA countries. By 1997, South Africa had about 51 licensed banks and 5 mutual (community) banks. Of the 51 licensed banks, 8 were branches of foreign banks, while 11 were subsidiaries of foreign banks. Today there are about 60 banks in South Africa, including 13 branches of foreign banks and 4 mutual banks.

In Kenya, a more gradual financial liberalisation strategy was adopted. Financial reforms in Kenya began in the 1980s following the advice of the IMF and the World Bank. Starting in 1981, a gradual liberalisation strategy was pursued and nominal interest rates were reviewed regularly. Major reviews were specifically undertaken in October 1982, June 1984, January 1988, April and November 1989, and April 1990. In 1983, a positive real interest rate was recorded and in July 1991, interest rates were fully liberalised. The financial system in Kenya is fairly well developed. The system comprises banks, non-banking financial institutions, building societies, and mortgage firms, inter alia. By 1993, the country had 32 commercial banks and 55 non-banking financial institutions (of which 25 were subsidiaries of commercial banks), 32 building societies, 10 development finance institutions and a large Post Office Savings Bank network, among other institutions. In November 1998, the banking system comprised 55 commercial banks, 16 non-banking financial institutions (NBFIs), 4 building societies, 2 mortgage finance companies (MFCs), and 44 foreign exchange bureaux.

Tanzania's financial system, in comparison, is considered relatively weaker than the financial systems in Kenya and South Africa. Although financial reforms in Tanzania started in the 1980s, full-fledged financial reforms started only in 1992. For example, it was only in July 1992 that the Bank of Tanzania (BOT) lifted its responsibility of setting interest rates (with the exception of the maximum lending rate). The 31% ceiling on the lending rate was abolished in 1993, while the requirement of a positive real deposit rate was abolished in 1994. The Tanzanian financial sector is narrow and shallow in relative

terms. Tanzania currently has about 18 banks, 11 non-banking financial institutions, 80 foreign exchange bureaux, 11 insurance companies, and 2 state-run pension plans.

1.2 Objectives and Hypotheses of the Study

1.2.1 Objectives of the Study

The main objectives of this study are to:

- a) assess the extent of financial liberalisation in the selected SSA countries, and explain some of the pitfalls associated with the original financial liberalisation package;
- b) examine the various linkages between financial liberalisation and economic growth in the selected sub-Saharan African countries;
- c) empirically test the impact of real interest rates on savings, financial deepening, investment efficiency and economic growth in the selected sub-Saharan African countries;
- d) test the long-run causal relationship between financial development and economic growth in the selected sub-Saharan African countries.

1.2.2 Hypotheses

The following hypotheses are tested in this study:

- (i) There is a positive relationship between financial liberalisation and economic growth in the study countries.
- (ii) Money demand and physical assets are complementary within the context of the money demand function.
- (iii) Money and physical assets are complementary within the context of the savings function.
- (iv) Interest rate liberalisation leads to financial deepening.
- (v) A rise in the real interest rates (deposit rates) increases the average efficiency of investment in the study countries.
- (vi) There is a distinct intertemporal supply-leading response between financial development and economic growth in the study countries (i.e. financial development drives economic growth).

1.3 Significance of the study

This study will help establish whether financial liberalisation exerts any positive influence on savings, financial deepening, investment efficiency, and economic growth in sub-Saharan Africa (SSA). The period covered in this study is between 1969 and 2001, thus covering both the regimes of financial repression and financial liberalisation. However, the emphasis is on the financial liberalisation regime. For the purposes of empirical analysis, the interest rate has been used in this study as a proxy for financial liberalisation. The motivation for using the interest rate is mainly because financial reforms in many developing countries are still at an early stage. Many countries have not gone the full distance necessary to implement external liberalisation completely. As a result, the only liberalisation that can be measured with certainty in many SSA countries is domestic (internal) financial liberalisation.

This study differs from the majority of previous studies done in sub-Saharan African countries in several ways. First, unlike most previous studies, this study employs a more standardised model of McKinnon's complementarity hypothesis. The study assumes that investment opportunities are plentiful and that the binding constraint is the supply of savings rather than the demand for investible funds (Nyagetera, 1997; Thornton, 1990; and Khan & Hasan, 1998).

Second, unlike the majority of previous studies, the reversibility aspect of McKinnon's complementarity hypothesis, which has been largely ignored by many studies, has been incorporated. In this study, a recursive system of equations has been used. The demand for money has been made a function of the savings ratio and, simultaneously, savings have been made a function of real money balances¹. Third, the study has explicitly

¹ See also Thornton, 1990; Khan & Hasan, 1998.

incorporated tests for financial deepening and investment efficiency in order to provide further evidence for McKinnon's complementarity hypothesis.

Fourth, a causality test between financial development and economic growth has been incorporated in this study alongside the three models in order to corroborate further the effect of financial liberalisation on savings, financial deepening, investment efficiency, and economic growth in the study countries. In this case an error-correction approach, subject to some time series properties has been used to establish whether a temporal causality exists between financial development and economic growth, and whether the process is supply-leading as it is normally assumed, or demand-following, or both (i.e. a bi-directional causality). This area has not been extensively researched in sub-Saharan Africa.

Fifth, the study utilises a cointegration based error-correction modelling (ECM) approach, which captures both the short-run and long run linkages, as opposed to the static ordinary least squares (OLS) used by the majority of previous studies. The ECM has at least four desirable features: i) It prevents the likelihood of spurious correlation among strongly trended variables; ii) The long-run relationships that may be lost by expressing the data in differences to achieve stationarity are restored by including the lagged levels of the variables on the right-hand side; iii) The specification attempts to distinguish short-run (first differences) and long-run (lagged levels); and iv) The specification provides a more general lag structure, which does not impose too specific shape on the model².

Finally, the study critically discusses the dilemmas and prospects associated with financial liberalisation in the selected sub-Saharan African countries. The experiences of the study countries with financial liberalisation are reviewed in order to relate these

² See Hendry, 1980.

experiences to the presumptions of the theoretical literature on the one hand, and to serve as a precursor to the econometric investigations on the other.

To my knowledge, this study will be among the first to examine in detail the dynamic impact of financial liberalisation on economic growth through its influence on savings, financial deepening, and investment efficiency in the selected sub-Saharan Africa countries (Kenya, South Africa and Tanzania). Very few studies in this region have entailed an exhaustive investigation into this linkage. The findings of this study will not only serve as early warning signals to the countries under study, but could also provide timely corrective options to countries that are contemplating financial liberalisation within the same macro-economic framework.

1.4 Motivation for choosing the countries selected

In this study, the experiences of three sub-Saharan African countries are investigated in order to examine the effect of financial liberalisation on sub-Saharan Africa. The three countries are Kenya, South Africa and Tanzania. These countries have been selected for reasons based on the following arguments: First, the selection includes two countries with strong financial systems, i.e. South Africa and Kenya, as well as one country with a relatively weak financial system, i.e. Tanzania. Second, the three countries represent two groupings, namely a country in the Common Monetary Area (CMA) (South Africa), and countries in the East African Community (Kenya and Tanzania). Third, since interest rate liberalisation is central to this study, it is important that the selected countries constitute both the late starters in interest rate liberalisation, such as Tanzania, and countries that liberalised their interest rates as early as 1980, i.e. South Africa. Another important consideration is the speed of financial liberalisation. For example, South Africa opted for rapid financial reform, while Kenya and Tanzania adopted a gradualist approach. South Africa removed credit ceilings and interest rate controls in 1980 and allowed greater competition in banking after 1983, but in 1985 tightened capital controls in response to

capital flight following the imposition of economic sanctions. In Kenya and Tanzania, a gradual liberalisation strategy was pursued. The nominal interest rates in Kenya and Tanzania were reviewed regularly, culminating in a virtual decontrol in 1991 and 1994, respectively.

1.5 A note on flexible interest rate as a proxy for financial liberalisation

In analysing the beneficial effect of financial liberalisation in the countries under investigation, this study uses interest rate liberalisation as a proxy for financial liberalisation. However, it is important to note that real interest rates, which are measured *ex post facto*, are likely to be affected by a variety of factors that have little to do with changes in the regulatory framework of financial markets³. Although this problem may be limited in a cross-country study (where interest rates are averaged over a long period of time), proxying financial liberalisation with the real interest rate in a panel study may be potentially misleading. For instance, a positive correlation between the real interest rate and the probability of a banking crisis may simply reflect the fact that both variables tend to be high during cyclical economic downturns, while financial liberalisation plays no role.

In an attempt to avoid this problem, some studies have constructed a financial liberalisation variable based on observed policy changes. This strategy is not without its own difficulties, however (see Demirguc-Kunt & Detragiache, 1998). First, there is no available database that records such policy changes. In most cases, researchers resort to case studies, IMF country reports, and other miscellaneous sources of information. Second, the process of financial liberalisation has taken many different forms in different countries across sub-Saharan Africa. For example, among the countries investigated in this study, Kenya and Tanzania adopted a gradual approach, while South Africa switched to a regime of financial liberalisation quite rapidly. In addition, there were policy

³ See Fry, 1997; Bandiera et al, 1997; Demirguc-Kunt & Detragiache, 1998.



reversals in some cases. All these difficulties further complicate the use of observed policy changes as a proxy for financial liberalisation. This is why many studies on financial liberalisation have continued to use the interest rate rather than observed policy changes as a proxy for financial liberalisation.

Further motivation for using the interest rate as a proxy for financial liberalisation is the fact that financial reforms in many developing countries are still at an early stage. They have not gone the full distance towards attaining external liberalisation. As a result, the only liberalisation that can be measured in many SSA countries is domestic (internal) financial liberalisation. Moreover, for all the countries studied, interest rate liberalisation has been considered the most important part of financial liberalisation. It is against this background that the current study opted to use interest rate changes as a proxy for financial liberalisation.

1.6 Organisation of the Study

The study is divided into ten chapters. Apart from chapter one (Introduction), a review of the literature on the origin of financial liberalisation, financial repression, as well as financial restraints are presented in chapter two. Emphasis here is on the role of financial liberalisation vis-à-vis financial repression. Chapter three takes stock of some of the challenges on the efficacy of financial liberalisation policy in developing countries. Issues included here are; the controversies, paradoxes, as well as dilemmas surrounding liberalisation policy. The dynamic linkages between financial liberalisation and other macroeconomic variables are discussed in chapter four. Issues related to financial liberalisation in the selected SSA countries are presented in chapters five, six, and seven. For simplicity, this has been done on a case study basis. Chapter eight discusses the estimation techniques used in this study, as well as the theoretical and empirical model specifications. Empirical modelling and the discussion of results are presented in chapter nine, while chapter ten concludes the study.

CHAPTER 2

A THEORETICAL PERSPECTIVE ON THE ORIGIN OF FINANCIAL LIBERALISATION

2. Introduction

This chapter discusses the origin of financial liberalisation and its misunderstandings within the context of developing countries. The chapter is divided into seven sections. Section two presents some conceptual issues on the definitions of financial liberalisation, financial repression and financial restraints. Section three presents the origin of the financial repression paradigm as well as its disadvantages. In section four, an overview of financial liberalisation hypothesis, including the McKinnon's complementarity hypothesis and Shaw's debt intermediation theory, as well as the beneficial role of financial liberalisation, are presented. The section also outlines the pre-conditions necessary for successful financial liberalisation. The theoretical underpinnings of financial restraints as well as various forms of financial restraints are discussed in section five. In section six, the taxonomy of financial systems is outlined. In this section, the distinction between bank-based and market-based, as well as the advantages and disadvantages of each system are explored. Finally, some concluding remarks are presented in section seven.

2.1 Financial Liberalisation, Financial Repression and Financial Restraints: Conceptual Issues

Financial liberalisation broadly defined can be characterized as the process of delegating to the market the authority to determine who receives and grants credit, and at what price. Full financial liberalisation involves six main dimensions: the elimination of credit controls, the deregulation of interest rates, free entry into the banking sector, central bank autonomy, private ownership of banks, and liberalisation of international capital flows. Financial liberalisation can be internal (domestic) or external (international). Internal

financial liberalisation, as defined in the literature, generally refers to a freer functioning of the domestic financial market, which involves, among other elements, the elimination of domestic credit controls relating to credit rationing, interest rate ceilings, and different reserve requirements. Other elements of internal financial liberalisation include the elimination of discriminating practices and capital requirements that curtail the free entry of local participants into the domestic financial market. External financial liberalisation on the other hand, entails the opening up of the domestic financial market to international flows, the removal of exchange controls, and the elimination of barriers to the entry of foreign banks.

As opposed to financial liberalisation, financial repression refers to the indiscriminate distortion of financial prices, including interest rates and foreign exchange rates. Specifically, financial repression involves one or more of the following: legal interest rate ceilings (i.e. interest rates which are artificially kept below the market clearing rates); discriminatory credit control (i.e. overall and selective quantitative ceilings); fixed exchange rates (quantitative foreign exchange controls); and high cash reserve ratios/requirements.

Financial restraint is fundamentally different from financial repression. While the basic premise of financial restraint is to create rent opportunities in the private sector, financial repression is based on the government extracting rents from the private sector to meet its deficits. Financial restraints theory has recently been popularised by the so-called New-Keynesians, who recognise the problem of incomplete information inherent in the financial system and the essential role of government intervention (Hellman et al, 1997; Lee, 2001). It is argued that financial restraints in the form of mild government intervention in interest rates and entry of financial institutions can produce a rent that helps in stabilising the financial system (Stiglitz and Uy, 1996). Moreover, there is a strong belief that government-directed financial allocation could induce higher economic growth in developing countries (Stiglitz and Uy, 1996).

Although the debate between financial restraints policy and pure financial liberalisation is far from being settled, there is at least a consensus that with the necessary government intervention financial liberalisation does benefit the economy¹. A fundamental strength of financial restraint is that the government does not directly interfere in the flow of funds from depositors to firms. The government only creates the rent opportunities, by placing a modestly binding deposit rate ceiling (Hellmann et al, 1997). Depositors are therefore taxed by the amount by which the rate ceiling is binding, with 100% of the revenue from this tax captured by the bank. This according to Hellmann et al (1997) provides fewer opportunities for government officials to divert funds to alternative uses. There is therefore less scope for corruption, as government officials are not controlling the resources themselves.

2.2 Genesis of Financial Repression

Until the 1970s, only two sets of theories held sway in interest rate policies. These were the classical/neo-classical theories and Keynesian theory. Under the classical argument, high interest rates are seen to have a direct positive impact on savings and therefore on investment. However, according to the Keynesian line of argument, low interest rates stimulate rather than discourage investment. In other words, a low interest rate policy bolsters investment and income resulting in higher savings (Khatkhate, 1972; 1988). Keynes (1936) for instance, argues that 'prior savings has no more tendency to release funds available for investment than prior spending has'. This means that high interest rates may discourage total saving by discouraging investment, which is the Keynesian and post-Keynesian riposte to the financial liberalisation school.

A clear representation of this line of thinking is in the works of Davidson (1986) and Asima Kopoulos (1986). Davidson, for example, argues that all that is needed to initiate

¹ See also Lee (2001).

additional real investment is the finance provided by an increase in total bank loans with no need for increased savings, provided the banks can create new finance via acceptable bank account practices.

However, according to the McKinnon (1973) and Shaw (1973) proposition, a repressed financial sector interferes with development in several ways. One, savings vehicles are not well developed and/or the returns on savings are negative and unstable in a financially repressed economy. Two, financial intermediaries that collect savings do not allocate them efficiently among competing uses. Third, firms are discouraged from investing because poor financial policies reduce the returns to investment or make them uncertain, and, as a result, growth is retarded.

Under financial repression, it is the government who influences who receives and provides credit and at what price. A government can exercise or reinforce such controls by regulating which financial institutions will be permitted to do business and how they will be permitted to operate, by owning banks and other financial intermediaries, and by exercising control over international capital movements (Williamson and Mahar, 1998).

2.2.1 The Disadvantages of Financial Repression

Fry (1982) popularised the devastating effects of financial repression in a diagram, in which an upward sloping saving function intersects with a downward sloping investment function so as to determine an equilibrium rate of interest, which balances savings and investment. The savings function in this case is assumed to depend largely on the growth of the economy and the real interest rate. As argued in this analysis, holding the rate of interest below that which would be determined by the intersection of the curves will reduce the desired supply of savings but increase the demand for investment. Lending rates are conventionally kept low in order to attempt to encourage investment. However, if lending rates are kept low, then the deposit rates also have to be low, unless the government is able to subsidise the financial intermediary.

One of the consequences of low interest rates in countries with high inflation is that real interest rates can often become negative. On average, the real interest rates in developing countries have been strongly negative since the 1960s (Gibson and Tsakalotos, 1994; World Bank, 1989). Aside from interest rate controls, the other form of financial distortion resulting from financial repression is compulsory credit allocations, in which it is sought to ensure that credit is granted to key sectors of the economy. In many developing countries, the key sectors included among others the industrial sectors, which were prioritised by the governments, the export industries sector, which can generate foreign exchange earnings, and government parastatals. This to a large extent hinders the commercial banks' ability to intermediate profitably as they cannot decide freely on where to lend and how much. Under financial repression, governments usually tax financial intermediaries either directly through the collection of taxes on banks' income and/or capital gains, or indirectly through forcing banks to hold a certain percentage of their deposits in government bonds and non-interest bearing reserves held at the central bank (cash reserves). Although excess reserves bear some interest, the tax on the banking system is in most cases equal to the difference between the interest rate the bank receives on its reserves at the central bank and the 'market' rate. The ultimate goal in this case is to provide the government with adequate funds to finance its high and increasing budget deficit.

Fry (1980) and Gupta (1984) conducted studies to estimate the cost of financial repression in a number of LDC countries. Fry (1980), for example, attempts to calculate the cost of financial repression using data from ten Asian LDCs. His study was based on the assumption that a decline in the real deposit rate of interest reduces real money demand (broadly defined). Fry concluded that the cost of financial repression has in the

range of 0.48 - 0.66 points in economic growth foregone for every percentage point by which the real deposit rate of interest is set below its market equilibrium level².

Gupta (1984) used a historic data series of seven endogenous variables that represent financial deepening, private savings, and disposable income. These were then compared to simulations of the data series using assumptions of the behaviour of the real rate of interest. The difference was supposed to be the cost of financial repression. The author, however, concluded that no clear-cut results were obtained.

2.3 The Case for Financial Liberalisation

The main objective of financial liberalisation is to build a more efficient, robust, and deeper financial system, which can support the growth of private sector enterprise. Efficiency in this case entails two components. The first involves improved credit allocation, i.e. credit allocation to borrowers with higher expected returns for given levels of risk. The second component of efficiency is increased competition, resulting from liberalised entry and/or removal of regulations that restrict competition.

According to the proponents of financial liberalisation, liberalisation of financial markets allows a more varied and specialised intermediation between savers and borrowers, using a multitude of institutions, instruments, and products. It also facilitates a freer flow of money to where it can be invested best, i.e. with higher risk-adjusted rate of return. Just like other markets of the economy, the 'invisible hand' of the financial market under financial liberalisation is expected to know how to match supply and demand efficiently. In addition, the 'invisible hand' is able to identify who wants to save and/or lend, for what purposes, and who wants to borrow and at what terms.

² See also Mavrotas and Kelly (1999).

All these cases for financial liberalisation imply that financial liberalisation has many advantages, which are healthy to the financial sector in particular and to economic growth of a nation in general. Specifically, financial liberalisation increases savings, improves the efficiency with which resources are allocated among alternative investment projects, and therefore raises the rate of economic growth. Notwithstanding the recent crisis, Asian nations have been considered as good examples of successful financial liberalisation. They enjoyed high growth rates, achieved high savings levels, which resulted in high investment in the economy. For about a decade after the reform, these nations have been enjoying improved living standards. Financial liberalisation, by breeding healthy competition, puts funds and resources to their optimal uses, so that the most beneficial projects gain accessibility to scarce funds.

Another argument in favour of financial liberalisation is that financial liberalisation give banks and other financial intermediaries more freedom of action and increases their opportunities to take on risks. It is also worth mentioning that, since financial liberalisation is a deliberate attempt to move away from financial repression as a policy to fund fiscal imbalances, it reduces the possibility of running a budget deficit by governments all the time (Cobbina, 1999).

In general, the benefit of financial liberalisation has been that it fosters development and increases long run growth (Levine, 1997; Demirguc-Kunt and Detragiache, 1998). Through financial liberalisation developing countries can stimulate domestic savings and growth, and reduce excessive dependence on foreign capital flows (Demirguc-Kunt and Detragiache, 1998).

2.3.1 The Theory of Financial Liberalisation according to McKinnon-Shaw

R. E. McKinnon and E. S. Shaw were the first to challenge seriously the conventional wisdom of financial repression in 1973. In their separate works they argue that the pursuance of policies such as low and administered interest rates, selective credit control,

and concessional credit practices, among others, leads to widespread financial repression in developing countries (McKinnon, 1973; Shaw, 1973). According to the authors, a repressed financial market discourages savings, retards the efficient allocation of resources, increases the segmentation of financial markets, and creates financial disintermediation of the banking system³.

The McKinnon and Shaw theses on financial repression and their proposal for financial liberalisation became the new orthodoxy in the 1970s and 1980s. This orthodoxy has brought a shift of emphasis in policy priorities to an extent that it has influenced even the thinking of the World Bank and International Monetary Fund (IMF). The essential message of the McKinnon-Shaw theses is that a low or negative real rate of interest discourages savings, and hence reduces the availability of loanable funds, which then constrains investments. This, in turn, lowers the rate of economic growth (Khan & Hassan, 1998; Odhiambo, 1999). Conversely, an increase in interest rate may induce the savers to save more, which allows more investment to take place.

2.3.2 McKinnon's Complementarity Hypothesis

McKinnon's explanation of how interest rates impact upon savings, investment, and growth is based on three assumptions. The first is that all economic agents are confined to self-finance to undertake investment. The second assumption is that capital is discrete and heterogeneous. Hence, investment expenditure is more indivisible than consumption expenditure. Third, it is assumed that the formal financial sector concentrates on providing credit to urban, modern, and export industries. On the basis of the first two assumptions, McKinnon was able to develop his complementarity hypothesis, which states that since economic agents have to accumulate money balances (or save) before investment can take place, money and physical capital are essentially complementary.

³ See also Khan & Hassan (1998).

According to this hypothesis, potential investors must accumulate money balances before their investment, and the more attractive the process of accumulating money, the greater the incentive to invest. In this case, the relative lumpiness of investment expenditures implies that the aggregate demand for money will be greater the larger the proportion of investment in total expenditures (McKinnon, 1973; Fry, 1978, 1982; Arrieta, 1988; Mohlo, 1986; and Clarke, 1996).

McKinnon (1973) in his influential book titled 'Money and Capital in Economic Development' combined both the theoretical analysis and illustration of the malfunctioning of capital markets in developing countries. The essential message here is that at low real interest rates, people would not want to hold much money (broad money) because low deposit rates of interest produce a bias in favour of current consumption and against future consumption. As a result, the financial system would not adequately be able to fulfil one of its primary functions of integrating capital and capital markets and equalizing returns to investment (Thornton, 1990; Athukorala and Rajapatirana, 1993).

According to McKinnon, the demand of household firms changes as they shift from consumption to investment because investment is lumpier and requires a longer period of accumulation from a given income stream before disbursement. Therefore, his proposition is that a rise in the rate of interest increases the volume of financial savings through financial intermediaries, and thereby raises investment funds, a phenomenon he called the 'Conduit effect'.

McKinnon further rationalised his complementarity relationship between investment and real assets and real money balances by stating that an increase in real money balances would mean greater efficiency of investment and, therefore, would raise output sufficiently to offset the declining share of output allocated to investment (McKinnon, 1973: 46; Khatkhate, 1988). Hence, higher positive real interest rates are warranted to build up real money balances, increase financial intermediation and unification of

financial markets thereby ensuring an efficient utilization of resources, particularly scarce capital. The complementarity between money and capital accumulation will continue to exist as long as the real positive interest rate does not exceed the real rate of return on investment (McKinnon, 1973).

2.3.3 Shaw's Debt Intermediation Approach to Financial Liberalisation Hypothesis

Although McKinnon and Shaw agree on the general impact of financial repression and the need to liberalise financial markets, they take rather different approaches to the transmission mechanism by which real interest rates affect savings, investment, and growth (Fry 1978, 1988; Gibson and Tsakalotos, 1994). Shaw takes a debt intermediation view. According to Shaw, financial liberalisation leads to an increased role for financial intermediaries. Shaw's approach to financial liberalisation, therefore, is in favour of the debt intermediation view, which he himself pioneered in the 1950s (Gurley and Shaw, 1960). Besides, Shaw's view is based on 'inside money' assumption in which money is backed, at least partially, by productive investment loans (Fry, 1982; Arieta, 1988). Shaw (1973) suggests in his seminal work that to understand why finance matters for development, the theory of finance in developing countries should adopt a debt intermediation view (DIV), which differs from the 'wealth intermediation view' (WIV).

The debt intermediation view (DIV) takes into account the particularities of financial intermediation in developing countries, while the wealth intermediation view (WIV) is more suitable for studying financial issues in developed countries (Fanelli and Medhora, 1998). The debt intermediation view emphasizes the role of credit in contrast to the conventional monetary economics, which has a bias in favour of the assets side of the economy.

Shaw's (1973) debt intermediation view therefore reverses the demand for money function (inside money) that can be characterised as follows:

$$(M/P)^d = f(y/P, v, d - \pi)$$

where

M/P = real money balances; y/P = real income; v = a vector of opportunity costs of holding money (in real terms); $d - \pi$ = real deposit rate of interest.

While emphasizing the importance of real interest rates in this model, Shaw, unlike McKinnon, points to external rather than internal finance as the effective constraint on capital formation. This hypothesis, therefore, states that expanded financial intermediation between savers and investors, resulting from higher real rates of interest, increases incentives to save, stimulates investment due to an increased supply of credit, and raises the average efficiency of investment because financial intermediaries can use their expertise to efficiently allocate the larger volume of investible funds (Shaw, 1973; Fry, 1978, 1982; Molho, 1986; Arieta, 1988).

2.3.4 The Role of Financial Liberalisation

i) *Financial Liberalisation and Financial Intermediation*

Financial liberalisation leads to efficient financial intermediation by banks, savings and loan institutions, investment banks, mutual funds, and insurance companies (Harvey et al, 1995). In the absence of financial liberalisation, financial institutions may either fall short of receiving all potential savings from households or they may divert too many of the savings away from investments. With underdeveloped financial markets, individuals may allocate some of their savings to passive instruments, such as gold, which cannot be used directly for physical investments. In this case, savers may hold gold because of their

concern about a future loss of purchasing power. This concern arises from the lack of stability in the banking sector or from the existence of government-imposed interest rate ceilings⁴.

ii) Financial Liberalisation and Savings

Financial liberalisation may also lead to increased savings, and since savings contribute to investment financing, economic growth is affected. Although the evidence as to whether a more developed and efficient financial sector would increase the proportion of income that individuals save is ambiguous, in an open economy with liberalised markets, foreign savings can be used to finance domestic investments. In this way, savings become an important source of funds for developing countries (Harvey et al, 1995). The assumption here is that as the financial sector develops, the real return on savings is likely to increase. With a more competitive financial system, the profit margin that financial intermediaries charge (i.e. the difference between lending and borrowing rates of banks) decreases. In addition, the competitive environment causes firms to waste fewer resources and consequently savers are offered higher returns.

iii) Financial Liberalisation and Efficient Capital Allocation

Financial liberalisation enables institutions to analyse investment projects and then fund those projects with the highest net value. Through financial liberalisation, financial institutions aggregate households' savings and allocate these funds to investment projects. The aggregation of savings is essential since the funds required for many investments are typically beyond the capabilities of any single investor. By pooling the savings of many households, financial intermediaries enable the undertaking of large-scale projects. Allocation in this case refers to the selection of investment projects by the financial sector (Harvey et al, 1995; Stiglitz, 1989; Collier and Mayer, 1989).

⁴ For more details, see Harvey et al (1995).

Greenwood and Jovanovic (1990) argue that the allocation of financial savings through financial intermediaries is more efficient and leads to a higher productivity of capital, resulting in higher growth. Economic growth in turn leads to higher levels of intermediation since intermediation is now more profitable. Through screening or monitoring activities, financial intermediaries generate information that positions them better to choose the best investment projects to fund than are households, which typically possess less comprehensive information. In a model developed by Greenwood and Jovanovic, it is argued that financial intermediaries collect information on many projects, which allow them to surmise the nature of the aggregate shock (bad or good) and to direct funds to the highest-return sector at the right time.⁵

In the same vein, Harvey et al. (1995) maintain that financial liberalisation ensures more efficient capital allocation by allowing firms and households to share risks. Efficient allocation in this case implies that funds are allocated to the investment projects or firms that bring the highest returns to the economy.

2.3.5 Preconditions for Financial Liberalisation

There is a growing consensus among the proponents of financial liberalisation, policy makers, as well as scholars that financial liberalisation in general and interest rates in particular may fail to produce the expected benefits if the timing, pace and sequencing are off (Nissanke, 1994; Gibson and Tsakalatos, 1994; Noland, 1996; Fry, 1997; Detragiache and Kunt, 1998). In other words, financial liberalisation should be supported by structural reforms within other economic sectors of the economy. Experience has shown that countries with serious macroeconomic and financial imbalances, or inadequate regulatory and supervisory frameworks, or, for that matter, whose financial institutions are insolvent, are likely to run into serious problems if they liberalise interest

⁵ Aggregate shock in this case entails both the economy wide shock (i.e. unexpected recession) and project-specific shock (i.e. unexpected shortage of key project ingredient).

rates too early or too rapidly. If liberalisation is premature, controls on interest rates may need to be re-introduced, as was the case in Turkey and Korea in the 1980s⁶.

Although there is no standard textbook approach to financial liberalisation, and each country must design its own blueprint for financial liberalisation, some general principles seem to be universally applicable, at least in countries where policy makers have some control over the liberalisation process.

The first principle is that policymakers need to decide when to start liberalising interest rates and how fast to move. While making this decision, it is important, however, to consider how far advanced the country is in reforming the public sector and in establishing a 'credit culture'. Secondly, policy makers need to determine the appropriate sequencing of liberalisation, i.e. the order in which interest rates on different financial instruments can be freed without threatening the health of the country's banking system. Thirdly, the central bank should strive to develop a strategy for conducting monetary policy within the framework of a liberalised financial system.

2.3.6 The Pace of Financial Liberalisation

It is now agreed that the speed of financial liberalisation needs to be determined in the context of a country's overall reform program (Mehran and Laurens, 1997). Rapid liberalisation in a country whose enterprises and financial institutions lack experienced management could prove counter-productive and may result in an unsound financial sector. Although liberalising too rapidly poses certain dangers, it has been found that a liberalisation process that is too slow could also defeat the financial reform program (Mehran and Laurens, 1997). When the liberalisation process takes too long, reforms may lose momentum and new distortions could emerge.

⁶ See also Mehran and Laurens (1997).

A number of studies, which have been conducted on the role of financial liberalisation, have emphasized timing, sequencing, pace, as well as speed as the major pre-conditions for financial liberalisation. Nissanke (1994), for instance, argues that liberalisation programs need to be realistic about the speed and sequencing of financial reforms. Gibson and Tsakalotos (1994) maintain that the difficulties most countries face in liberalising their financial markets go beyond problems of macroeconomic stability. Eatwel (1997) argues that financial liberalisation in developing countries has been over-sold, and that the interest that has been expressed by developing countries in the phenomenon of financial liberalisation is risky. Even McKinnon has come to recognise that the order in which the monetary system should be stabilised in comparison to the pace of deregulation of banks and other financial institutions must now be considered more carefully (McKinnon, 1989). Kunt and Detragiache (1989) reiterate that since banking crises are more likely to occur in liberalised financial systems, liberalisation should be approached cautiously – even where macro-economic stabilization has been achieved. In their study on liberalisation and financial fragility, the authors found that financial liberalisation has a strong impact on a fragile banking environment.

2.3.7 Sequencing of Financial Liberalisation

When determining the appropriate sequencing of interest rate liberalisation, it is not only important to distinguish between loan and deposit transactions but also between wholesale and retail transactions. Interest rates on wholesale transactions for sophisticated entities should be liberalised first, followed by lending rates and, finally, deposit rates. This gradual and systematic approach is vital as it safeguards the profitability of banks while allowing time for people and firms to adjust to liberalisation shocks. This sequencing approach, which begins with inter-bank market rate liberalisation, followed by lending rates and then, later, by deposit rates stems from the desire to treat financially sophisticated entities, i.e. financial institutions and government agencies, differently from those with less financial awareness (such as business enterprises and the general public). Since the inter-bank market rate does not affect the

public directly, its liberalisation has the least political and social influence. The rationale for liberalising lending rates before deposit rates is that with this sequencing it is possible to avoid overly fierce competition in the banking sector, which could adversely affect the profitability of financial institutions and that this 'buys time' for commercial banks to strengthen their operations and financial structure. It is expected that during this transitional period, governments will be able to enact legislation on collateral and bankruptcy, which is essential if the financial sector is to operate on a commercial basis (Laurens and Mehran, 1997)

In order to avoid unstable deposit flows between financial institutions, it is prudent not to wait until all lending rates are fully liberalised before beginning to liberalise rates on some types of deposit, e.g. large time deposits, which are usually held by large companies and institutional investors. Early liberalisation of rates on large deposits is also justified by the fact that they will increasingly be competing with money market instruments, e.g. treasury bills or repurchase agreements. According to Fry (1997), financial liberalisation can only be successful if it is accompanied by fiscal reform aimed at ensuring that government debt does not explode in the aftermath of the liberalisation.

Noland (1996) argues that appropriate sequencing of financial reforms is essential for the success of financial liberalisation. The author reiterates that it is wiser to move gradually and improve economic fundamentals first before permitting a complete financial deregulation. Financial reforms should be designed and implemented in such a way as to ensure the stability of the financial system, while gradually removing financial repression, dismantling directed credit programs, introducing better accounting, legal and supervisory frameworks, and continuing with institution-building and the deepening of financial intermediation (Noland, 1996: 2).

Villanneva and Mirakho (1990) came to a number of conclusions regarding the sequencing and modality of financial liberalisation in developing countries. First, the

approach should take into account the initial state of the economy, particularly the financial position of the private sector and the quality of prudential regulations of the financial system (Villanueva and Mirakho, 1990: 529). If the macro-economic environment is unstable (adversely affecting the private sector's profitability) and bank supervision is ineffective, interest rate liberalisation should be gradual in order to avoid the possible disruption to long-standing financial contracts that is likely given a sudden removal of interest rate regulations. At the same time, strict supervision of the banking systems must be maintained in order to minimize the moral hazard in the banking system. The importance of strong banking regulatory and supervisory policies should be underscored, not only because they ensure the viability of the banking industry, but also because interest rate liberalisation would be ineffectual without them. Second, the institutional changes should be in the forefront of financial sector reforms. These should include a strong supporting infrastructure that will provide for adequate information flow, credit appraisal and rating and legal accounting systems and the development of equity markets. Such institutional reforms will help reduce the dependency of firms on bank credit and help orient them towards equity financing. Firms' vulnerability to interest rate shocks should be reduced in this case to allow more room for interest rate liberalisation. Third, where inflation is low a gradual financial liberalisation that maintains a positive real rate of interest will be the best policy measure, provided that banking supervision is strong and effectively enforced and demand management and other policies are appropriate to maintain economic stability. However, in countries with high inflation, strong and credible stabilisation programs, and an equally strong set of prudential regulations are generally the best initial policy measures. Postponing the removal of interest rate regulations until the monetary situation has been stabilised and the banking supervision strengthened may be appropriate in this case. Interest rates should therefore be pre-announced when they are raised so that banks and borrowers are informed with certainty of the new interest rate. For a country with high inflation that has already deregulated interest rates, the most appropriate approach would be to implement a strong and credible stabilisation program that will stimulate the private sector, and to

strengthen the system of prudential controls over the banking sector. It is likely that failure to integrate and effectively implement such policies alongside financial liberalisation could lead to financial instability, which, in turn, could exacerbate macro-economic instability. In the interim, if interest rates appear to get out of control, it may be necessary to revert to regulating nominal interest rates while maintaining them at positive levels.

2.4 The Case for Financial Restraints

Since the 1970s, the prevailing view in many developing countries has been that the free market provides the best environment for economic growth. In terms of financial sector reforms, this means minimal regulation and no government caps on interest rates. The motivation for this *laissez-faire* outlook is based on the evils of financial repression prior to financial reforms, in which heavy-handed government intervention was the rule in the economy. The results of this ominous term ‘financial repression’ were rampant inflation, negative real interest rates and economic stagnation. However, the fact that financial repression was not successful does not mean that modest government intervention cannot be healthy. Recent studies have concluded that, even if free financial markets are the ultimate objective, some friendly government controls need to be maintained in an economy in order to ensure stability in the overall financial sector of the economy (Odhiambo, 1999; Fry, 1995). These financial restraints should, therefore, continue until the achievement of both domestic deregulation and macro-economic stability. Advocates of the philosophy of financial restraints argue that governments can create policies that enhance the efficiency of the private sector and, in particular, the banking sector through some modest (friendly) intervention in the financial market. In this way, the government can foster an environment where there are ‘rent opportunities’, i.e. opportunities to make higher profits than elsewhere in the economy.

Moreover, studies have revealed that no government today can afford full financial liberalisation. There will be at least some government interventions in the financial

sector. For example, Japan and other East Asian countries have experienced high levels of economic growth but with government intervention in the banking sector. The argument here is that, since within the free market paradigm the complexities of financial markets are problematic, a tendency towards an efficient design regulation is likely to offer a second best solution. Furthermore, experience has shown that a *laissez-faire* approach may only work well in product markets and not in financial markets (Reese, 1996).

As Fanelli et al (1998) put it, “there is no financial market structure free from intervention. There is always some degree of government intervention owing to the existence of market failures, emanating from market structures, externalities, uncertainty, and informational problems. Consequently, it is necessary to determine which regulations are market ‘friendly’ and therefore should be considered instead of financial repression” (Fanelli et al, 1998:5).

2.4.1 Various Forms of Financial Restraints

There exist five broad types of financial restraints, which have been used in relatively recent times by governments in order to achieve prudential goals (Demetriades, Arestis, and Fattouh, 2000; Honohan and Stiglitz, 1999). These are restraints on

- i) interest rates
- ii) reserve and liquidity requirements
- iii) capital adequacy requirements
- iv) capital inflows, and
- v) entry into the financial system

Some of these restraints will be discussed in more detail below.

2.4.1.1 Interest Rates Restraints

A number of authors have argued that, in the presence of information asymmetries, liberalisation of interest rates may not necessarily lead to efficient gains (Schiantarelli et al, 1994). In the presence of implicit deposit insurance, interest rate liberalisation may encourage banks to take excessive risks (McKinnon and Pill, 1998). This form of moral hazard may manifest itself in loans that are too risky and even in speculative activities such as real estate acquisitions and stock purchases, which may divert the allocation of resources away from productive activities (Caprio, 1994). In such circumstances, interest rate liberalisation will not only reduce the average productivity of capital, but may also lead to an increase in bad debts (Demetriades, Arestis and Fattouh, 2000). Likewise, it is argued that financial liberalisation, if accompanied by increased competition, may erode the franchise value of banks (Caprio and Summers, 1993). This aggravates the problem of moral hazard in the banking system and encourages looting behaviour in banking, hence increasing the probability of financial crisis (Akerlof and Romer, 1993).

Due to these information asymmetries associated with interest rate liberalisation, economists have suggested that some types of financial restraints such as interest rate restraints can in fact reduce the problem of moral hazard and adverse selection (Stiglitz, 1994). In doing so, the restraints may enhance the soundness of the domestic banking system, which in turn may result in better allocation of resources (Arestis, and Demetriades, 1997; Demetriades, Arestis and Fattouh, 2000). In the same vein, Hellman et al (1994a, 1994 b, 1996a, 1996b) argue that 'financial restraint' policies create rent opportunities in the financial sector, which enhance incentives for financial deepening. In Hellman et al (1996a, 1996b) these ideas are applied to deposit mobilisation, which is crucial to many developing countries. By limiting deposit rates at levels below competitive equilibrium rates, governments create rent opportunities, which the banking sector could utilise for what is termed an 'educational advertising campaign', a tool of non-price competition which facilitates the mobilisation of deposits, thereby enhancing

financial deepening in a system of low financial depth. The outcome of financial restraints under these conditions is shown to be superior to those under a free market *laissez-faire* system⁷.

Another related argument is that interest rate restrictions generate scope for rationing credit according to national priorities through directed credit programmes. Although directed credit programmes failed to achieve efficiency gains in many countries, some governments have been successful in channelling credit towards projects with high social returns, which may have been unprofitable to finance with the higher interest rates that usually prevail in liberalised credit markets (Calomiris and Himmelberg, 1994). For instance, in some East-Asian countries, the willingness to adopt credit policies to changing circumstances and the use of contests based on export performance are believed to have contributed significantly to the effectiveness of these programmes (World Bank, 1993; Demetriades, Arestis and Fattouh, 2000).

In a more recent study on 'Financial Restraints in the South-Korean Miracle', Demetriades and Luintel (2001) found evidence which robustly shows that the direct effects of financial restraints on financial development in Korea were not only positive but also quite large, while the effect of changes in the real interest rate were insignificant. The authors conclude that "our empirical findings are consistent with our theoretical predictions but contrast sharply with the predictions of earlier literature that postulates that interest rate ceilings and other financial restraints constitute sources of financial repression" (Demetriades and Luintel, 2001:1).

Honohan and Stiglitz (1999) argue that ceilings on deposit interest rates are a robust policy which can give banks market power in the deposit market, at least to the extent that there are no perfect substitutes outside the scope of the ceilings. As such, they will provide a franchise value. They may also serve to limit the scale on which banking can

⁷ See also Demetriades, Arestis and Fattouh (2000).

be conducted, and this may mean a portfolio with lower average risk, depending on the range of loan opportunities available to banks.

2.4.1.2 Restraints on Reserve and Liquidity Requirements

Advocates of financial restraints argue that minimum reserve and liquidity requirements are particularly useful when money markets are not sufficiently deep or developed, as in the case of many developing countries (Demetriades, Arestis and Fattouh, 2000). Reserve and liquidity requirements are usually designed to ensure that banks are sufficiently liquid in order to be able to meet their day-to-day withdrawals by depositors. Even in developed markets, reserve and liquidity requirements can play a useful role, especially when there is imperfect information about a bank's solvency.

In principle, a solvent bank, which faces an imbalance between short-term payments and short-term income, may borrow through the bank market to close this liquidity gap. However, frequent liquidity shortages may generate bad signals concerning solvency through the inter-bank market. As a consequence, wholesale banks may refuse to provide an illiquid bank with the necessary funds, thus forcing the illiquid bank to sell long-term assets at distress prices, thereby lowering the value of its assets. In this way, what started as a problem of liquidity may well be translated into a problem of insolvency (Dewatripont and Tirole, 1993; Demetriades, Arestis and Fattouh, 2000).

According to the advocates of financial liberalisation, reserve and liquidity requirements are considered as a tax on financial intermediation, which widens the spread between deposit and loan interest rate and reduces the size of the financial system. Consequently, the abolition of reserve requirements, by increasing the size of financial intermediation and removing the distortionary effects of the tax, is likely to result in a more efficient allocation of financial resources. This would help to increase the average productivity of capital (Fry, 1995). This argument implicitly assumes that government revenue from reserve and liquidity requirements is used unproductively, probably to finance

government consumption. If these resources are instead used to finance productive public investment, then this conclusion may not follow (Demetriades, Arestis and Fattouh, 2000). A body of literature on infrastructure demonstrates that investment in public capital has large positive effects on the productivity of private capital (Aschauer, 1989; Lynde and Richmond, 1993; Nadiri and Mamuneas, 1994; Demetriades and Mamuneas, 1998). This then implies that reserve and liquidity requirements may well help to enhance the average productivity of capital (Demetriades, Arestis and Fattouh, 2000:7).

2.4.1.3 Restraints on Capital Adequacy Requirements

The most common restraints on the composition of liabilities is minimum capital requirements, whether in terms of a percentage of assets, weighed or unweighed for risk characteristics, or in terms of an absolute minimum amount (Demetriades, Arestis and Fattouh, 2000; Honohan and Stiglitz, 1999). There are three reasons why regulators impose capital adequacy requirements. First, capital adequacy requirements can help to reduce the scope for moral hazard behaviour by banks, thereby containing their tendency to take excessive risks. Second, capital adequacy requirements can reduce bank insolvency risk or default risk. Finally, with capital adequacy requirements, losses to depositors in the event of bank failure can be reduced (Wall and Peterson, 1996; Blum and Hellwing, 1995; Demetriades, Arestis and Fattouh, 2000; Honohan and Stiglitz, 1999).

On achieving the first and second objectives, the theoretical literature is not unanimous. Using a mean variance framework, Kim and Santomero (1988) suggest that capital regulation may in fact increase a bank's portfolio risk, and hence lead to an inefficient allocation of assets. Specifically, an involuntary reduction in leverage can be met by a change in the composition of a bank's portfolio towards more risky assets. In contrast, Keeley and Furlong (1990) argue that the mean variance approach use by Kim and Santomero (1988) is inadequate to address the impact of capital adequacy requirements. This is because the mean-variance framework fails to recognise that the bank does not

have full liability and that value of deposit insurance will increase as the bank's leverage increases. When the Kim and Santomero's (1988) model was adjusted to take this feature into account, Keeley and Furlong (1990) found that higher capital requirements would always result in lower risk-taking on behalf of the bank. However, Gennotte and Pyle (1991), while using a different approach that incorporates Keeley and Furlong's suggestion concerning the value of deposit insurance and under the assumption that bank investments are subject to decreasing returns, found that capital requirements increase the risk of bank's portfolio.

Other studies, which have been conducted on this subject include Hancork et al (1995), Honohan and Stiglitz (1999), and Burger et al (1995). Hancork et al (1995) show that the capital adequacy ratio may contribute to the crunch by reducing the amount of new loans to business. Burger et al (1995) argue that capital regulations may lead to allocative inefficiency by shifting the use of traditional bank loans to off-balance sheet assets. But, Honohan and Stiglitz (1999) argue that capital adequacy requirements directly insulate depositors (and the deposit protection agency) by providing a first line of reserves to absorb losses. Besides, they can provide a bonding effect on shareholders, thereby partly substituting for franchise value. In the same vein, Demetriades, Arestis, and Fattouh (2000), while conducting an empirical study on 14 countries using modern panel-time series methods, found that the effect of financial restraints (such as capital adequacy requirements and restrictions on capital flows) vary considerably across countries. The main predictions of financial liberalisation literature, however, are not borne out in this study, reflecting the prevalence of financial market imperfections. The authors conclude that "in contrast, our findings provide significant support to the thesis – currently gaining ground among international policy makers – that some form of financial restraints may indeed have positive effects on economic efficiency" (Demetriades, Arestis and Fattouh, 2000:21).

2.4.1.4 Restraints on Capital Inflows

It is widely recognised that short-term capital inflows may be associated with more costs than benefits (Demetriades, Arestis and Fattouh, 2000). It is therefore important for governments, and possibly the international system, to do more to restrain the movement of capital, especially of short-term 'hot money' (Stiglitz, 1998). While short-term capital inflows may, in principle, supplement domestic savings and lead to higher levels of investment and growth rates, this benefit is likely to be small in economies already possessing high savings and investment ratios (Demetriades, Arestis and Fattouh, 2000). The recent financial crisis in East Asia has vividly demonstrated that where it is not possible to invest short-term capital inflows in productive activities, they could end up creating asset price bubbles, especially when they are channelled into the stock or property markets. Stiglitz (1998) argues that many countries seem to get private capital when they are growing strongly and need it least, but they have a relatively hard time accessing capital when they are in difficult times, and when they need it most. As a result, capital flows do very little to smooth the business cycle, and may even amplify it. As Stiglitz argues, short-term capital inflows, unlike foreign direct investment, do not bring with them ancillary benefits. In the form of trade credits, short-term capital provides an important, and relatively inexpensive source of international liquidity without which no economy, especially an export-oriented economy, could run. In addition to providing liquidity, short-term capital, along with other forms of inflows allows a country to invest more than it saves. When this money is invested productively, the benefit to the economy is large. However, when the saving rate is already high, and when the money is misallocated, the additional capital inflows will just increase the vulnerability of the economy. Unfortunately, many empirical studies have systematically failed to find any relationship between capital account liberalisation and growth or investment (Rodrik, 1998).

2.5 Taxonomy of Financial Systems: Bank-based versus Market-based

The financial system serves an important role in an economy by channelling savings to productive uses (Lee, 2001). The more developed the financial system is, the better will be financial resource allocation and monitoring over the productive borrowers. A number of studies have illustrated the existence of a positive correlation between financial development and the development of the economy as a whole (Levine, 1997). Broadly speaking, financial systems are divided into bank-based and market-based types according to the relative role of financial institutions and financial markets like stocks or bonds. Whether the comparative development of financial markets and banks can influence economic growth is, however, a question that has long been hotly debated. This debate is currently fuelled by the differing economic development experiences of countries which first concentrated on financial markets, like the United Kingdom (UK) and the United States of America (USA), and those which gave priority to the system of universal banks (e.g. Germany, Japan)⁸.

Until the early 1990s, many economists argued that the good performance of economies such as Japan, as opposed to many market-based economies, was due to inefficiency of the market-based system, especially for long-term economic growth. However, the crisis in the East-Asian countries in the late 1990s adversely challenged the bank-based financial system. Today, economists and policy makers agree that the bank-based system is vulnerable to problems, such as inefficient capital allocation along with intimate relationship between banks and firms, and most of all, higher debt-ratio. The moral hazard problem in the bank-based system is even worse. With the implicit government bailout, finance sometimes only does harm to the economy, making the system more fragile to financial crisis (Greenspan, 1999). As Greenspan (1999) puts it, if the capital market had been developed well in East Asia, the East Asia crisis would not have been that serious since the capital market can buffer the credit contraction in the banking sector. The current mainstream idea is that countries contemplating developing a highly

⁸ See Lee (2001).

sophisticated bank-based financial system should also develop a modest capital market that can complement the bank-based financial system⁹.

2.5.1 Bank-based Financial System

Most economists still believe that a bank-based financial system is better than market-based system. In particular, it is argued that economic growth could be encouraged more in the bank-based system since it can induce longer-term investment in the real sector, whereas investment in the market-based system is too sensitive to the stock market prices with short-term investment (Hoshi et al, 1990; Lee, 2001). Hence, the bank-based system can encourage productive investment as it is less affected by unstable financial markets. Even in recession, the intimate relationship between banks and business can allow firms to continue with investment without pushing them into bankruptcy (Hoshi et al, 1990; Lee, 2001). Also, it is argued that expensive or industrial policies of the government can be carried out more easily in the bank-based system because it provides governments with more measures to intervene into the financial sector (i.e. interest rate regulation and credit policy) than the market-based system (Pollin, 1995).

However, the bank-based financial system has its own disadvantages (Lee, 2001): First, the bank-based system may go into malfunction and, in this case, the market-based system could be better in some respects. Second, the bank-based system could induce firms to relatively high debt, making them financially more fragile. For instance, when the government gives banks or firms unreserved guarantee for survival, the moral hazard problem of banks and business and agency costs could be very high. As Lee (2001) puts it, “frequently, governments can’t let banks go bankrupt because either they use banks as a policy tool or they are concerned about the financial instability, and can’t let firms go bankrupt if they are too big to fail” (Lee, 2001:5).

⁹ For more details, see Lee (2001).

2.5.2 Market-based Financial System

The proponents of the market-based financial system, especially the neoclassicals, assert that the stock market is better than banks in that it generates efficient information about the performance of firms, reflecting the market fundamentals in the real sector (Lee, 2001; Sharfstein, 1988). It is argued that the stock market can play an effective monitoring role because a firm's stock price will fall with bad performance, and finally will be taken over by others in the stock market. Thus, managers must make all efforts to maximise the value of firms in the stock market, thereby leading to the best performance (Sharfstein, 1988). In addition, shareholders' meetings and performance pay, such as stock options, are presented as alternative control mechanisms for a market-based financial system (Lee, 2001).

However, just like the bank-based financial system, the market-based financial system has its own weaknesses. First, the market-based financial system does not guarantee an efficient monitoring system for the stock market. Second, the takeover mechanism in the stock market is unclear, and in most cases depends on the size and not the performance of a firm. In addition, shareholder meetings and performance pay may not necessarily be good mechanisms mainly because of problems of coordinating small shareholders, as well as political and social constraints. Shleifer and Summers (1990), for instance, argue that the price in the stock market, which is usually determined by speculative 'noise trade', is so unstable that it could be harmful to investment in the real sector. With the fundamental uncertainty and speculation in the stock market in the Keynesian world, the problems inherent to the stock market become even more serious (Bernstein, 1998). Likewise, incomplete information causes high transaction costs in the stock market, so that financing in the market is less efficient and costly (Lee, 2001). At times, issuing stocks in themselves gives negative signals about the quality of firms, thus leading to high cost. In most cases, small and medium companies are more vulnerable to hard times, compared to big companies with a good reputation, when there are serious

problems of incomplete information that prevent the stock market development from reducing the financing cost and inducing investment (Stiglitz, 1992).

2.6 Concluding Remarks

In this chapter, the origin and theoretical underpinnings of financial liberalisation have been presented. The distinction between financial liberalisation, financial repression, and financial restraint has been explored. Based on the issues discussed in this chapter, a number of conclusions can be drawn.

First, it is important to note that financial liberalisation involves both domestic (internal) and capital account (external) liberalisation. Apart from removing domestic regulatory constraints on the operations of domestic financial markets, liberalisation also relaxes international financial transactions.

Second, the beneficial effects of financial liberalisation can only be realised if timing, speed, and sequencing are right. Although there is no standard approach to financial liberalisation that fits all countries, some general principles seem to be universally applicable, and may mitigate the negative effects of financial liberalisation in an economy. First, a country should first pursue domestic (internal) financial liberalisation before implementing capital account (external) liberalisation. Second, when pursuing domestic liberalisation, it is important to distinguish between loan and deposit transactions, as well as wholesale and retail transactions. Interest rates on wholesale transactions should be liberalised first, followed by lending rates and finally, deposit rates. Third, a strong and credible stabilisation program should be implemented alongside financial liberalisation in order to stimulate the private sector and to strengthen the system of prudential controls over the banking sector.

Finally, it is important to note that while financial liberalisation may be seen as a necessary condition for economic growth, abandoning financial repression in its totality

may result in extraordinarily high interest rates that can be just as damaging. In this way, some mild, friendly government interventions in the form of financial restraints may be desirable, at least in the short-run to keep interest rates below market rates.

CHAPTER 3

THE CHALLENGES OF FINANCIAL LIBERALISATION: A POST MCKINNON–SHAW SYNTHESIS

3. Introduction

This chapter discusses the controversies, challenges and paradoxes that have emerged in the literature since the on-set of financial liberalisation in the 1970s. The chapter is organised as follows. Section one outlines some of the controversies over the positive role of financial liberalisation with emphasis on the neo-structuralist, Keynesian, and Post-Keynesian critiques. In section two, the paradox of the insolvency that is currently facing a number of developing countries is discussed. The contentious debate between low and high interest rate policy is presented in section three. The question addressed in this section is whether there exists a desirable level of interest rate that can unambiguously contribute towards economic growth. In section four, other financial liberalisation policy challenges are discussed. The emphasis here is on the fiscal deficits and inflation rates, which are currently high and increasing in many developing countries.

3.1 Controversies over the Role of Financial Liberalisation

The experience of many developing countries with financial liberalisation has been controversial. As a result, a number of schools of thought have criticised the role of financial liberalisation for various reasons. To date, there are at least six criticisms of the role of financial liberalisation. The most influential of these is based on the argument that savings may not necessarily depend on the rate of interest. In other words, there is no profound relationship between the deposit rate and savings. Other criticisms include: the neo-structuralists controversy, the Keynesian and post-Keynesian critique, the existence of inefficient and asymmetric information (i.e. the Stiglitz-Weiss critique), and the role of the stock market in economic growth.

3.1.1 The Role of Interest Rates on Savings

One of the prominent arguments against the financial liberalisation is based on its ambiguous impact on domestic savings. A number of studies on the subject have concluded that higher interest rates may reduce rather than increase the volume of savings for a number of reasons. The first and the most appealing reason is that the negative income effect of increased interest rates might offset the positive substitution effect between consumption and savings. A change in interest rates, just like other prices, has two effects: substitution and income effects. The substitution effect encourages saving by making current consumption more expensive, but the income effect deters savings because at a higher interest rate the same income can be obtained with less savings. In other words, high interest rates increase the opportunity cost of consumption, thus making households increase savings (the substitution effect), while the increase in wealth due to the increase in interest rates increases consumption (the income effect). An increase in interest rates therefore has an ambiguous effect on savings and current consumption. The income effect leads to more current consumption (hence reduced savings), while the substitution effect leads to less current consumption (hence increased savings). It is, however, likely that the negative income effect of the increased interest rate will offset the positive substitution effect between consumption and savings (Bandiera et al, 1999; Warman and Thirwall, 1994; Cho and Khatkhate, 1990; Arrieta, 1988; Giovannini, 1983).

The second argument, which has been advanced on the interest elasticity of savings, is anchored in the fact that an increase in the real interest rate will only reallocate the existing volume of savings in favour of financial savings and leave the total volume of savings unchanged. When the real interest rate is high, financial savings are made more attractive and economic agents find it more rewarding to transfer their savings from other forms of savings to financial savings. Such reallocation may also occur if reforms provide a new range of financial investments such as shares, mutual funds, postal savings, and pension funds. That is to say that, if these assets are made more attractive, it

is likely that economic agents may reallocate their savings in favour of these assets, but such a reallocation may have no impact on the volume of the total savings (Gupta, 1984; Mahambare and Balasubraman, 2000).

The third argument in this respect is that, at very low levels of income, interest rates are unlikely to stimulate savings. This is so because the totality of incomes will be devoted to consumption rather than savings. Therefore, when income is low, even if a high deposit rate is sustained, savings will not increase unless income rises beyond consumption level. Statistical evidence on this argument suggests that a one per cent increase in the real interest rate increases savings rate by only about one-tenth of one percentage point in the relatively poor countries, whereas in the relatively rich countries it increases the savings coefficient by about two-thirds of one percentage point (Ogaki et al, 1996). Even at relatively high levels of income, financial reforms, which ease borrowing constraints, may stimulate consumption rather than savings (also Japelli and Pagano, 1989, 1994; and Hall, 1978).

In general, empirical studies on the elasticity of savings with respect to real interest rates have produced a mixed bag of results. Fry (1980) found a positive relationship between savings and the rate of interest for fourteen countries. Similar results were obtained by Yusuf and Peters (1984) for South Korea, Leite and Makonnen (1986) for six African countries, and Ostry and Reinhart (1992) for 13 developing countries. Studies with distinct negative or insignificant relationships include Giovannini (1983, 1985), Mwega et al (1990), Oshikoya (1992) and Reichel (1991). Finally, mixed results were obtained by Gupta (1987), Lahiri (1989) and Villagomez (1994). The weight of evidence, however, supports a weak and relatively low positive elasticity of saving with respect to the rate of interest rate.

3.1.2 Determinants of Savings other than Interest Rate Reforms

Apart from interest rates, there are a number of other factors that can unambiguously boost savings. These include: macro-economic stability, financial and capital market reforms, financial deepening, terms of trade, and fiscal reforms, among others.

i) Macro-economic Stability

Empirical results suggest that macro-economic stability is critical in stimulating savings. Studies have shown that the rate of saving can be enhanced if a country is operating in an environment where the rate of inflation and level of budget deficits are low¹. Uncertainty about the real returns on savings and about the direction of macro-economic policies may also have deleterious effects on savings (Hadjimichael et al, 1995).

ii) Financial Capital Reforms

The effects of financial and capital market reforms on private savings work through various channels, and can be negative or positive (Schmidt-Hebel, 1996). First, capital market reforms may reverse capital flight, thereby raising the portfolio share of domestic assets and increasing measured income, measured net exports and measured domestic savings. Second, financial liberalisation and capital market deepening may raise the efficiency of intermediation, thereby increasing growth and thus private savings. Third, financial liberalisation and the consequent increase in geographical density of financial institutions, the range of financial institutions, and the quality of regulation and supervision in the financial sector typically lead to financial deepening, which is reflected in more financial savings (Schmidt-Hebel, 1996).

¹ Mason et al (1995) for example, find that saving is negatively correlated with inflation.

iii) Financial Deepening

The monetisation of a broader range of economic activities and transactions would facilitate financial savings, as would the broadening of the range of flexible savings instruments. There is empirical evidence of the positive and significant effect of the increase in the ratio of broad money to GDP on savings. Thus the process of financial deepening, which is spreading throughout the whole of Africa, has a large pay-off in terms of domestic resource mobilisation.

iv) Terms of Trade Effect

The management of trade booms and contractions can be critical to private as well as public savings. To the extent that the terms of trade shocks contribute to macro-economic volatility, undermine fixed exchange rate regimes, and destabilise domestic banking system, booms and contractions can have far-reaching consequences for private and public savings (Mavrotas and Kelly, 1999; Mwega, 1997). Depending on how the boom is managed, and whether more of the adjustment falls on the public or private sector, the outcome also depends on the combination of fiscal, monetary and banking regulation instruments applied, the availability of hedge instruments, as well as the political environment for fiscal decisions. Generally, an improvement in the terms of trade increases incomes, and hence potential private and public saving, especially if the improvement is considered transitory (Mwega, 1997). This effect is important in Africa where exports, which are sold in volatile markets, are limited only to a few primary commodities. According to the Derberger-Laursen-Metzler effect, a temporary improvement in the terms of trade is considered to increase the saving rate because it suggests a transitory boost in national income, which increases national savings. An IMF study in 1995 found that changes in the terms of trade have a strong positive effect on saving. Contrary to the above studies, others such as Lopez-Murphy and Navajas (1998)

on Argentina found no correlation between private savings and terms of trade for the period 1970-1995².

v) Income Effect

It is commonly believed that the poor save a smaller fraction of their income than the wealthy because they are closer to the line of subsistence. However, according to the permanent income and life-cycle hypothesis, savings are simply used to smooth consumption over time. Consequently, it is the time pattern of income that matters. Those with more volatile income should have a higher savings rate, according to these theories (Mavrotas and Kelly, 1999). It is also argued that households in developing countries tend to be credit constrained, and as a result are less able to smooth consumption. In this case, it is likely that consumption and savings would respond substantially to changes in income. Gupta (1987) for example finds that savings respond significantly and positively to temporary income shocks in developing countries. According to Deaton (1989), if the young anticipate that their income will grow steadily, and are able to borrow against the increase, their dissaving in the early years of the life cycle may result in a negative relation between saving and growth.

i) Wealth Effects

According to the inter-temporal optimisation models, wealth is seen as a key determinant of consumption and savings. Specifically, wealth is assumed to provide a substitute for savings, and hence greater wealth is predicted to reduce saving out of current income. Schmidt-Hebbel et al (1992) and Mavrotas and Kelly (1999) cite evidence from a study by Schmidt-Hebbel (1987), which uses five alternative measures of total wealth in an empirical inter-temporal consumption model for Chile, and a study by Behrman and

² For a detailed survey on this subject, see Mavrotas and Kelly (1999).

Sussangkarn (1989), using household level data on wealth and saving in Thailand. In both cases, wealth was found to have a strong negative effect on savings.

vii) Demographic Effect

In the standard life-cycle models, it is stated that individuals will have negative savings when they are young, positive savings during their productive years, and negative savings during their retired years. In this theory, it is assumed that the aggregate amount of savings depends on the relative number of active and retired people in the economy, which in turn depends on the population growth rate. According to the standard model, individuals consume all the resources available to them over their lifecycle. In this view, it is maintained that aggregate private savings will be affected by the age distribution of the population. In this way demographic factors are supposed to be important elements of the entire savings process. Strong demographic effects have been found in: Horioka's study on Japanese savings (Horioka, 1991); Kang (1994) in the case of Taiwan, Korea, and Japan; Khan, Hasan and Malik (1994) in the case of Pakistan; and Khan and Hasan (1998) in the case of Pakistan. In particular, Khan and Hasan (1998) found the coefficient of the dependency ratio used in the savings function to be negative and statistically significant. Their finding is also consistent with Fry (1991) and Khan, Hasan and Malik (1994).

viii) Government Savings / Political Stability

Government savings are a fundamental component of national savings. There has been an extensive literature detailing the behaviour of governments and how they influence savings. Edwards (1996) provides a useful summary of this literature. As the author puts it, the authorities' incentive to increase government savings depends on two factors. The first is the probability that the party in power will still be in power in the subsequent period; if this is low, then the incumbent party has little incentive to save, as the other party will gain the credit from the subsequent increased production of public goods

(Mavrotas and Kelly, 1999:16). Thus the higher the degree of political instability, the lower the government savings. A second determinant of governmental incentives to save is the degree of political polarisation, i.e. the degree of difference in the political parties' preferences. A greater degree of polarisation will, in theory, result in lower government savings.

ix) Foreign Capital

One of the most controversial elements of the savings literature is the relationship between foreign capital (in particular foreign aid) and domestic savings, in the recipient countries. This debate is still the subject of a continuous disagreement on the aid-effectiveness front. The effect of foreign aid on domestic savings in developing countries has been analysed mainly in terms of the Harrod-Domar growth model and its two-gap version associated with Hollis Chenery and his associates in the 1960s. Some of the recent contributions in this area include Boone (1994), Obstfeld (1995), and Reinhart and Talvi (1998), among others. Although vast, the empirical literature on the topic has failed to offer a clear-cut answer so far. More recently Reinhart and Talvi (1998) challenge the popular views, based on the experience of the 1990s, that domestic and foreign saving are positively related in East Asia, and negatively related in Latin America. The authors conclude that the literature offers little empirical basis for the popular view of the 1990s. The estimates of the degree of substitutability between domestic and foreign saving, obtained through reduced form models, suggest that domestic saving should respond similarly to a surge in capital flows in both Asia and Latin America.

x) Social Security Reforms

Reforming social security systems is an important route for mobilising savings in developing countries. Private savings are affected by the extent and courage of government-run social security systems, in the sense that if individuals expect to receive high benefits from the government at retirement, they will tend to reduce the amount

saved during their active years. Along these lines, the development of new institutions in the social security sector could force the level of saving in low-income countries to be depressed (Movrotas, 1999). In most countries, pension systems are state-run, un-funded, and operate on a pay-as-you-go basis. There are a number of problems with such a system, such as the lack of direct relationship between benefits and contributions, which can strain government budgets, and wage taxes that may distort labour markets and encourage tax evasion (Movrotas, 1999:17). As suggested by a number of authors, such as Edwards (1996) and Feldstein (1980), a switch to either fully funded, or at least partially funded schemes would have a beneficial effect on the level of national savings in an economy. Empirical literature has been inconclusive about the above-hypothesised effects. However, on the policy front it is argued that public pension systems are intended to fulfil two primary objectives: to provide a compulsory saving mechanism, and to alleviate poverty among the elderly. The compulsory saving mechanism forces individuals who might be myopic with regard to their future needs, or who might expect to rely on charity in their old age to save for themselves.

3.1.3 The Neo-Structuralist Critique

Another persuasive critique of the financial liberalisation school concerns the relationship between the formal and the informal financial sector. According to neo-structuralists, higher real interest rates are likely to attract funds away from the informal money market or curb market where there is no regulation over the use of funds. Since banks are subjected to reserve requirements, and are forced to loan compulsorily to governments, the diversions of funds away from the informal sector may lead to the total supply of loans to the private sector being reduced. The neo-structuralists school in this way contradicts the McKinnon-Shaw hypothesis that financial liberalisation exerts a positive influence on the rate of income growth both in short and medium run. They predict a stagflation outcome from financial liberalisation in the short-run. However, in the medium run, there is a possibility that the savings ratio can increase and finally

outweigh the negative influence of portfolio adjustment (Gibson and Tsakalotos, 1994; Fry, 1997).

Taylor (1983), for example, argues that the McKinnon–Shaw hypothesis of the effects of financial liberalisation may be wrong on two counts. First, an increase in the desire to save reduces the aggregate demand and makes economic contraction more likely than growth. Second, the impact of a rise in the real deposit rate on the credit availability will depend crucially on whether these deposits come from non-productive assets such as gold, jewellery and so on or from deposits in the curb (informal) market. If the inflow of deposits to the banking systems comes from assets that were previously non-productive the impact on credit availability is likely to be positive. However, if the deposits flow to the banking system from the curb (informal) market, the total supply of credit in the economy could easily contract. This is mainly because banks are subject to reserve requirements whereas the curb market is not (Taylor, 1983).

Van Wijnbergen (1983a) incorporates these insights into a macro-economic model of a typical developing country. In this model, it is assumed that households can choose to hold their assets according to the Tobin portfolio model, which includes currency, time deposits and direct loans to business (via the curb market). Van Wijnbergen argues that the firm's demand for loans depends on real wages and output rather than on the rate of interest and that the rate of interest has virtually no role to play.

Another contribution to the neo-structuralist argument is based on the work done by Buffie (1984). The author argues that if curb loans constitute a large share of the total loanable funds, and are relatively good substitutes for demand deposits, then the total supply of credit in the economy can contract. Therefore, for financial liberalisation to

succeed, demand deposits must be a much better substitute for currency and foreign bonds than curb loans³.

In general, an increase in time deposits due to financial liberalisation may, according to the neo-structuralists, have two effects. First, it may cause a portfolio shift from currency to time deposits. Second, it may cause a shift from curb market deposits to time deposits. If an increase in time deposit causes a portfolio shift from currency to time deposits, the amount of credit available will probably increase. However, if it results in a shift from curb market deposits to time deposits, it follows that the amount of credit available will decline by the amount of reserve requirements in the official sector. Virtually all neo-structuralists believe that the second effect is likely to dominate.

3.1.4 The Keynesian Critique

According to the Keynesian school, a low interest rate policy bolsters investment and income, resulting in higher savings (Khatkhate 1988, 1972). Keynes (1936), for instance, succinctly argued that prior savings has no more tendency to release funds available for investment than prior spending has. Consequently, high interest rates may discourage total savings by discouraging investment. Indeed, the main distinction between the Keynesian view and the McKinnon-Shaw hypothesis is the transmission mechanism between interest rates and economic growth. While the Keynesian school base their argument on 'prior investment' policy, the McKinnon-Shaw school maintain that "prior savings" is a necessary condition for economic growth.

3.1.5 The Post-Keynesian Critique

The main difference between the McKinnon-Shaw hypothesis and the post-Keynesian view is as follows. In the McKinnon-Shaw case financial liberalisation leads to increased savings and hence investment. The rise in the deposit rate first stimulates savings and

³ See also Gibson and Tsakolotos (1994).

then investment, and, as the quantity and quality of investment increase, economic growth increases. This stimulates savings even further. Therefore, in the McKinnon-Shaw approach both the quality and quantity of investment are expected to increase as the rate of interest increases, *ceteris paribus*.

In the post-Keynesian models, the situation is rather different in that financial liberalisation may lead to a fall in output, income and the rate of profit, which may cause both savings and investment to decline. The implication here is that investment could easily be lower under financial liberalisation than under financial repression.

In general, the criticism of post-Keynesian apostles over the role of financial liberalisation is based on two premises. First, the post-Keynesians argue that the supply of bank credit is not exogenous as treated by the McKinnon-Shaw school. Second, high interest rates may result in stagflation (i.e. a combination of high inflation and rising unemployment). This discussion begins by covering the issues relating to the endogeneity and exogeneity of bank credit, and then turns to the stagflation argument.

3.1.5.1 Endogeneity Versus Exogeneity of Bank Credit

One of the main criticisms posited by the post-Keynesian school against financial liberalisation is based on the McKinnon-Shaw model of financial liberalisation. This model, according to the post-Keynesian critique, seems to treat banks simply as savings depositories, with the presumption that the supply of loans from the banking system depends on deposits held by the bank. Hence, according to the McKinnon-Shaw school, an increase in bank deposits will automatically lead to an increase in bank loans. In other words, the supply of credit in the McKinnon-Shaw model is treated as exogenously determined. But the post-Keynesian argument is that commercial banks have the power to increase credit, supported by the central bank acting as lender of last resort. The supply of loans, therefore, will depend on the demand for loans, and not on the supply of deposits. In this way, the supply of loans and the supply of money becomes endogenous

rather than exogenous. Within this framework, the post-Keynesians would argue, the incentive to invest is more important than the incentive to save and this may require lower interest rates.

The work of Davidson (1986) is a representative of this line of argument. Davidson argues that as long as banks can create new finance through acceptable bank accounting practices, all that is needed in order to initiate additional real investment is finance. This is provided by an increase in total bank loans with no need for increased savings. In the same vein, Asimakopulos (1986) argues that the investment market can become congested through a shortage of cash, but it can never become congested through a shortage of savings. Therefore, if banks can create credit without having to increase their deposits first, then an increase in financial savings may make no difference to the amount of total credit given to the private sector. According to the author, the total amount of credit is in this case determined not by the supply of loans, but, rather, by the demand (i.e. by the decision to invest).

3.1.5.2 Financial Liberalisation and Stagflation Argument

Another prominent criticism of financial liberalisation advanced by the post-Keynesian school is that financial liberalisation leads to both high inflation and high unemployment - a phenomenon referred to as stagflation. According to the post-Keynesian school, the financial liberalisation model ignores the adverse effects high real interest rates can have on costs and the level of demand in an economy (Dutt, 1990). According to this view, high interest rates do not only discourage investment, but may also lead to currency overvaluation by attracting capital from overseas. The currency overvaluation will not only lead to a fall in exports but also increases the cost of servicing debt, which leads to cuts in government expenditure. Currency overvaluation and cuts in government expenditure are both deflationary. There is evidence of this in many countries. In Latin America, for example, financial liberalisation went wrong in the 1970s because there was an explosion of government debt, economic instability, and excessive high real interest

rates, which led to bankruptcies, bank failures and prolonged recession. This forced many countries to abandon financial liberalisation temporarily (Diaz-Alejandro, 1985).

In a related study, Burkett and Dutt (1990) develop models that suggest that despite savings responses under financial liberalisation, increased growth may not follow. The authors argue that if there is excess capacity in the economy, higher rates of interest will worsen income distribution, increase inflation, and reduce the rate of growth. However, if the economy is at full capacity, higher interest rates will improve distribution and reduce the rate of inflation, but may not necessarily increase growth.⁴

In a more recent study, Akyuz (1995) suggests that while an increase in interest rates will lead to increased financialisation of savings, its distributive effects on income may lead to lower levels of private and government savings, and thus to a net decline in gross domestic savings. The output effects are ambiguous in the short run, but investment and growth levels would both be lower over the long-term. More precisely, in a developing country in which corporate and government domestic debts are large, a rise in domestic interest rates will increase the cost of borrowing and debt servicing costs, and thus lead to a redistribution of income in favour of the owners of debt (renters). Corporate savings fall because corporate incomes fall as debt-servicing costs increase. Government savings fall not only because of the increase in debt service costs, but also because of a fall in tax returns. Tax returns fall because the incomes of debt holders, or renters are taxed at a lower rate than corporate profits. While the savings of debt holders increase (leading to financial deepening), it is unlikely that this increased saving will compensate for the reduced savings of other groups⁵.

⁴ See also Serieux (1997).

⁵ For a detailed review, see Serieux (1997).

3.1.6 The Stiglitz and Weiss Critique

In a series of papers by Stiglitz and Weiss, Stiglitz (1994) criticises financial liberalisation on the grounds that financial markets are prone to market failures. He suggests that there should be some form of government intervention that will not only make these markets function better, but will also improve the performance of the economy. Specifically, Stiglitz advocates government intervention to keep interest rates below their market equilibrium levels.

In the same vein, Stiglitz and Weiss (1981) show that the limits to which interest rates can be raised is a direct consequence of imperfect information between lenders and borrowers. The basic intuition here is that while a moderate increase in the lending rate will normally elicit a higher volume of lending, additional increases in rates beyond a certain level would prompt a lower level of lending activity by changing adversely the quality of borrowers in favour of those in the high risk category. According to Stiglitz and Weiss (1981), a free interest rate regime alone is not sufficient for full allocative efficiency of capital when an imperfect markets prevail. When banks face an excess demand for loans, the optimal response is to limit lending to potential borrowers, and to charge an interest rate level that maximises the bank's expected profits. Under these circumstances, two effects will be noticeable. First, the adverse incentive effect, which causes the firms to switch to more risky projects as the rate of interest, rises. When interest rates rise, the rate of return on all projects falls and the least risky ceases to be profitable. Consequently, increasing the interest rate raises the overall riskiness of the banks' portfolio of assets. Second, there is the adverse selection effect. According to Stiglitz and Weiss, asymmetric information is a feature of credit markets because borrowers are likely to know more about their proposed projects than lenders. Lenders (i.e. banks) know that each borrower has a different probability of repayment, and would like to screen customers. If banks decide to use the interest rate as a screening device,

they may attract bad risks, since borrowers who are willing to pay high risks may be less worried about the prospect of non-payment.

3.1.7 The Role of the Stock Market in the Process of Financial Liberalisation

The McKinnon-Shaw hypothesis on financial liberalisation has also been attacked by a number of scholars for ignoring the important role of the stock market in economic development (Levine and Zervos, 1996; Sigh, 1997). Sigh, for example, argues that between 1982 and 1992, the total market capitalisation of companies quoted on the stock exchange in a number of developing countries increased by a factor of 20. Beyond their role in domestic financial liberalisation, stock markets played a paramount role in external financial liberalisation in developing countries. Sigh, by closely examining the implications of these developments, concludes that, since financial liberalisation makes the financial system more fragile, it is not likely to enhance long-term growth in developing countries.

Levine and Zervos (1996) also argue that a well-developed stock market may be able to offer other forms of financial services than those available from banking systems, and may, therefore, provide a different kind of impetus to investment and growth. Specifically, the authors argue that increased stock market capitalisation, measured either by the ratio of the stock market value to GDP or by the number of listed companies, may improve an economy's ability to mobilise capital and diversify risk. It is estimated that the world stock market capitalisation grew from \$4.7 trillion in the mid-1980s to \$15.2 trillion in the 1990s (Demirguc-Kunt, Levine and Levine, 1996; Demetriades and Arestis, 1997). The total value of shares traded on developing countries' stock markets rose over twenty-five-fold between 1983 and 1992 (Sigh, 1997). The total value of shares traded on emerging markets, on the other hand, jumped from less than 3% of the total \$1.6 trillion world total in 1985 to 17% of the \$9.6 trillion world total in 1994 (Demirguc-Kunt and Levine, 1996). This shows that the role of the stock market in economic development could be substantial.

In this context, various stock market development indicators have been found to explain part of the variation of growth rates across countries, in some cases over and above the effects of the banking system (Atje and Jovanovic, 1993; Levine and Zervos, 1998). The stock market may promote long-run growth by encouraging specialisation as well as acquisition and dissemination of information (Diamond, 1984; Greenwood and Jovanovic, 1990; Williamson, 1986). It may also reduce the cost of mobilising savings, thereby facilitating investment (Greenwood and Smith, 1997). A well-developed stock market may enhance corporate control by mitigating the principal-agent problem through aligning the interests of managers and owners, in which case managers would strive to maximise firm value (Jensen and Murphy, 1990). Levine (1991) and Bencivenga et al (1996) argue that stock markets make financial assets traded in them less risky because they allow savers to buy and sell quickly and cheaply when they wish to alter their portfolios. At the same time companies enjoy easy access to capital through equity issues. Less risky assets and easy access to capital markets improve the allocation of capital, an important channel of economic growth (Arestis et al, 2000).

Although it is generally believed that stock markets can positively influence economic growth, it is conceded that increased liquidity can also influence growth negatively. This may take place through three channels (Demirguc-Kunt and Levine, 1996). The first channel is that greater stock market liquidity, by increasing the returns to investment, may reduce the savings rate. The second is that, given the ambiguous effect of uncertainty on savings, greater stock market liquidity might in fact reduce the savings rate through its negative impact on uncertainty (since less uncertainty may decrease the demand for precautionary savings). The third channel, however, operates through the euphoria and myopia that may be encouraged by a highly liquid stock market. Dissatisfied participants find it easy to sell quickly, which can lead to disincentives to exert corporate control, thus affecting adversely corporate governance and hurting economic growth in the process (Jansen and Murphy, 1990; Arestis et al, 2000).

Another important characteristic of stock markets that may undermine their ability to promote an efficient allocation of investment is the volatility of listed equity prices. While a certain level of price volatility in the stock market is desirable, since it may reflect the effects of new information flows in an efficient stock market, some evidence suggests that the observed levels of volatility may be excessive (Arestis et al, 2000). This may reflect independence of stock market asset values from underlying fundamentals (Shiller, 1981; 1989). Excessive volatility, if present in an economy, may result in an inefficient allocation of resources, upward pressures on interest rates (in view of the higher uncertainty), hampering both the volume and the productivity of investment and therefore reducing growth. Moreover, excessive stock trading may also induce ‘noise’ into the market to the detriment of efficient resource allocation (Federer, 1993; DeLong et al, 1989; Arestis et al, 2000).

3.2 The Paradox of Insolvency

Even though it is agreed that financial liberalisation, notwithstanding the challenges, contributes positively towards economic growth, many governments are still hesitant to implement this policy fully. As a result several experiments on this policy have failed to yield the intended results. One of the main reasons why governments are hesitant to abandon completely financial repression is because a financial sector under administratively imposed restrictions is a potential source of “easy money” for the public budget. The main argument here is that many developing countries are still operating in a paradox. On the one hand, they are anxious to mobilise domestic savings by offering attractive returns to savers, i.e. implementing financial liberalisation. On the other hand, they want to finance their priority projects as cheaply as possible, i.e. by borrowing at artificially low interest rates (e.g. financial repression). Moreover, some of these governments still believe that priority sectors and regions need cheap credit.

The basic problem in this paradox, therefore, lies in the perverse reaction by the insolvent (i.e. non-profit motivated) economic agents like some public firms or individuals. By definition, an insolvent institution is one whose liabilities exceed its assets, or “a distress borrower” who is unable to repay his loans (Dixon, 1997). The insolvent economic agent is not deterred from borrowing by higher cost. He or she simply continues to borrow whatever is necessary and possible to finance the losses. These loans inevitably rise with the increase in interest rate, which drives up the agent’s cost of servicing his loans. Hence, such agents exhibit a loan demand function that responds positively to the increase in interest rate. Experience has shown that high positive real interest rates, possibly triggered by fiscal instability, indicate a poorly functioning financial system. Inadequate supervision and regulation enables distress borrowing to crowd out borrowing for investment purposes by solvent firms, thus producing an epidemic effect (Stiglitz and Weiss, 1981; and Fry, 1995).

3.3 Interest Rate Policy Debate – High Versus Low Interest Rates

The issue of the interest rate level is a contentious subject on which there is no unanimity. A number of authors have argued that a relatively high growth of output can coexist with negative real interest rates (Agrwala, 1983; Lanyi and Saracoglu, 1983). Contrary to this opinion, there are several studies, which have found no direct relationship between the level of savings and the interest rate (ChandarvarKah, 1971; Mikesell and Zinser, 1973; Brown, 1973; and KhatKhate, 1988). Recent studies show that the debate is far from being settled and that prospects for future research in this field will depend largely on the improvement of data availability. (Gonzalez-Gerardom, 1988).

The argument for keeping interest low is based on the following primary justification. First, when the interest rate is low, the cost of financing the government deficit is reduced. Second, the Keynesian belief that a low interest rate provides a stimulus for increased capital accumulation has also made governments jump on this bandwagon. The

third justification for maintaining a low interest rate structure has been to assist small farmers and indigenous small-scale industries that cannot afford to borrow at high interest rates. The fourth reason has been the fear that high interest rates may be inflationary either through the direct impact on costs or the indirect effect through expectations.

Abebe (1990) argues that if existing real interest rates are set at exceedingly low or negative levels, there must be an appropriate level of interest rate structure that will contribute to the mobilisation of savings, and at the same time enhance the level of fixed capital formation. Abebe reiterates that interest rate policy formulation is an exceedingly difficult task that requires the qualitative judgment of many factors, rather than the simple application of an interest rate formula. Moreover, the complex and pervasive interrelationship between the real sector and the financial sector means that it is even more crucial that the government closely coordinates its monetary, fiscal, exchange rate, and trade policies. Experience has also shown that even the best financial sector could flounder in the face of contradictory signals coming from the real side of the economy, i.e. where financial and economic rates of returns differ widely (Hanson and Neal, 1985).

However, one issue that remains undisputed is that excessively high interest rates tend to lower economic growth by reducing investment demand. The consequences of paying higher interest rates than what the underlying productivity of the economy's capital will allow must be carefully examined. High interest rates on deposits depend ultimately on the opportunities available for utilising those funds to gain sufficiently high returns. In the absence of such opportunities, the financial system must transmit its accumulated capital abroad for investment in high-yielding foreign financial assets. Therefore, a high interest rate policy, while encouraging economic agents to hold more savings in a financial form, may not contribute to domestic investment and economic development. (Khatkhate, 1982; 1980; and Abebe, 1990).

3.4 Other Challenges on the Efficacy of Financial Liberalisation Policy

3.4.1 Financial Liberalisation and Fiscal Deficit Explosion

Although financial repression, notably interest rate ceilings and foreign exchange rate controls, reduces economic growth, it also reduces the cost of government deficits. This means that abandoning the use of financial repression in totality may result in extraordinarily high real interest rates, which can just be as damaging. Fry (1997) argues that, in order for financial liberalisation to be successful, it must be accompanied by fiscal reforms aimed at ensuring that government debt does not explode. According to Fry, many governments in developing countries rely on revenue from inflation tax. They also reduce their interest costs through financial repression. In practice, inflation seems to have yielded government revenue of about 2% of GDP on average in samples of developing countries (Fry et al, 1996). As Fry puts it, if government finances are stable with this revenue from financial repression, the loss of such revenue requires higher revenue from alternative sources, or expenditure cuts of a similar magnitude. Therefore, unless the government is committed to fiscal reforms in conjunction with financial repression, the latter may be the lesser of two evils. According to Diaz-Alejandro (1985), if government expenditure cannot be reduced or traditional tax revenue increased, then abandoning financial repression revenue may lead to an explosion in government debt, economic instability, and lower economic growth. Khatkhate (1996) analyses the close linkage between fiscal deficits and financial reforms. According to Khatkhate, the fiscal deficit in developing countries is large and mostly monetised. This means that its size has to be reduced if financial reforms are to be on a steady and sustainable trajectory. Paradoxically enough, a fiscal deficit, far from improving, tends to get worse, as the fiscal reform gets into swing. A reduction in reserve requirements and the containment of inflationary monetary expansion reduces tax revenue; while market determined interest rates on government loans being higher than before the financial reforms, tend to raise fiscal deficits. In the absence of action on creating alternative sources of revenue, which depend on the radical reform of the tax system or reducing the expenditure, the fiscal

deficit cannot easily be pared down, and, in fact, is more likely to rise in the wake of financial reforms. It is, therefore, quite misleading to assert that financial reforms only make transparent the magnitude of the fiscal balance, which is otherwise hidden by the financial repression (Johnston, 1994). It is also clear that financial reform will not be sustainable unless fiscal reform proceeds *pari-passu* with financial reform or precedes it (Khatkhate, 1996:129-130).

3.4.2 Financial Liberalisation and Inflation

One of the prominent arguments for keeping interest rates artificially low is that raising them would add to or fuel inflation. This argument is based on two grounds: first, in most of these countries interest payments are included in the price indices used to measure inflation, so that when the interest rate rises it impacts on the index. Second, interest payments are viewed as part of the cost of production and raising them would increase inflation through an increase in producer prices (Ikhide, 1992).

However, according to McKinnon (1973) and Shaw (1973), high and flexible interest rates would dampen rather than fuel inflation. In particular, McKinnon emphasises that stabilisation policies, which encourage high nominal interest rates as against reduced monetary expansion, can help to bring about rapid reduction in inflation without necessarily leading to a fall in output. The assumption here is that firms in developing countries are believed to depend largely on commercial bank credit to finance their working capital. A reduction in the rate of monetary expansion will therefore impact directly on the ability of the banks to grant credit to productive enterprises, and enforce an immediate large reduction in real output and employment. Moreover, excess money supply growth, which often causes inflation, can be mitigated by using high interest rates to stimulate the demand for money.

3.5 Summary and Concluding Remarks

In this chapter, the controversies, challenges, as well as paradoxes of the efficacy of financial liberalisation have been reviewed. Since the onset of financial liberalisation in the 1970s, a number of schools of thought have criticised financial liberalisation for a number of reasons. In this chapter, six opposing theoretical constructs have been discussed. The most influential of all these criticisms is based on the argument that savings may not necessarily depend on the rate of interest, and if it does, it may reduce rather than increase the volume of savings. Some of the reasons, which have been advanced in the literature to explain this view, are as follows:

- i) An increase in the interest rate has two effects, namely the positive substitution effect (which promotes savings) and the negative income effect (which deters savings). However, it is likely that the negative income effect will offset the positive substitution effect, thereby leading to a negative overall effect on savings.
- ii) An increase in interest rates will only reallocate the existing volume of savings in favour of financial savings, and leave the total volume of saving unchanged.
- iii) At low levels of income, interest rates are unlikely to stimulate savings because the totality of incomes will be devoted to consumption rather than savings.

The second criticism of financial liberalisation is based on the 'neo-structuralist' critique. The critical difference between the McKinnon-Shaw financial liberalisation hypothesis and the neo-structuralist view is the role accorded to the informal financial sector. The

neo-structuralist school argues that because of the reserve requirements of banks, the diversion of funds away from the informal to the formal sector (due to increased interest rates) may lead to the total supply of loans to the private sector being reduced. However, the validity of this argument depends largely on the relative size of the informal sector in the economy.

The third criticism is based on the Keynesian critique. The main distinction between the Keynesian view and the McKinnon-Shaw hypothesis is the transmission mechanism between interest rates and economic growth. While the Keynesian school believes in 'prior investment' policy, the McKinnon-Shaw school believes in 'prior savings'. Consequently, for the McKinnon-Shaw school, high interest rates promote savings, investment, and income, while, for the Keynesian school, high interest rates policy discourages savings through its negative influence on investment and income.

The fourth financial liberalisation criticism is based on the post-Keynesian critique. This criticism has two premises. First, the Post-Keynesian school argues that the supply of bank credit is not exogenous as treated by the McKinnon-Shaw school. The post-Keynesians, therefore, argue that if banks can create credit without having to increase their deposits, then an increase in financial savings may make no difference to the total credit given to the private sector. Second, the post-Keynesians argue that high interest rates may only result in stagflation (i.e. a combination of high inflation and unemployment). The proponents of this view argue that the financial liberalisation model ignores the adverse effects high real interest rates can have on the costs and level of demand in the economy. This view maintains that if there is excess capacity in the economy, higher interest rates will only worsen income distribution, increase inflation and reduce the rate of economic growth. However, if the economy is at full employment, higher interest rates may improve income distribution and reduce the rate of inflation, but will not necessarily increase growth.

The fifth criticism emanates from the Stiglitz and Weiss critique. Stiglitz argues that since financial markets are prone to market failures, there should be some form of government intervention to correct these failures. Specifically, government intervention should keep interest rates below their market clearing levels. The intuition here is that while a moderate increase in lending rates leads to a higher volume of lending, an additional increase in rates beyond a certain level would prompt a lower level of lending activity by changing adversely the quality of borrowers in favour of those in the high risk category.

The sixth criticism of the McKinnon-Shaw theory of financial liberalisation is based on the argument that financial liberalisation ignores the important role of the stock market in economic development. It is believed that stock markets play a paramount role in external financial liberalisation in developing countries. Yet, the McKinnon-Shaw model fails to incorporate this contribution in their model. The proponents of this view argue that a well-developed stock market may be able to offer other forms of financial services than those available from the banking systems and may, therefore, provide a different kind of impetus to investment growth.

Aside from the criticisms of financial liberalisation outlined above, financial liberalisation has a number of challenges that have been discussed in this chapter. Some of the challenges facing the efficacy of financial liberalisation include the paradox of insolvency in the implementation of financial reforms, and the fiscal deficit explosions and high inflation associated with financial liberalisation policy.

One of the fundamental challenges currently facing the implementation of financial liberalisation in developing countries is the level of insolvency in a number of countries. Several interest rate liberalisation experiments have failed to produce the desired results in many developing countries because many developing countries are operating in a paradox. On the one hand, they are anxious to mobilise domestic savings by offering

attractive returns to savers, i.e. by implementing financial liberalisation. On the other hand, they want to finance their priority projects as cheaply as possible (i.e. the desire to pursue financial repression). When this paradox prevails, financial liberalisation is unlikely to achieve its desired outcomes.

The other challenge facing financial liberalisation is based on the relationship between financial liberalisation and high fiscal deficits, on the one hand, and the close association between financial liberalisation and inflation on the other. In this chapter, two arguments have been advanced to explain the positive relationship between financial liberalisation and high fiscal deficits. The first argument is that financial repression policies such as interest rate ceilings and foreign exchange controls reduce the cost of servicing government deficits, and, abandoning the use of financial repression in totality in the name of financial liberalisation, may result in extraordinarily high interest rates that could be just as damaging. The second argument is that many governments in developing countries rely on revenue from inflation tax, and the loss of such revenue during the financial liberalisation period may require higher revenue from alternative sources, or expenditure cuts of a similar magnitude. Therefore, unless governments are committed to reducing fiscal deficits through fiscal reforms, financial repression may be the lesser of the two evils⁶.

Regarding the relationship between financial liberalisation and inflation, the debate has been whether financial liberalisation in its purest form fuels or dampens inflation. Although McKinnon (1973) and Shaw (1973) argue that high and flexible interest rates would dampen rather than fuel inflation, studies reviewed in this chapter have systematically shown that financial liberalisation actually fuels inflation. The reasons advanced here are two-fold. First, in many countries interest rate payments are included in the price indices used to measure inflation, so that when the interest rate rises, it

⁶ This argument has been popularised by Diaz-Alejandro (1985); Fry (1996); Fry (1997); and Khatkhate (1996).

impacts on the index. Second, interest rate payments are viewed in many countries as part of the cost of production and raising them would increase inflation, through an increase in producer price index⁷.

Overall, it is worth concluding that, while there is a sufficient body of literature in support of the efficacy of financial liberalisation theory, the theoretical arguments against financial liberalisation are steadily growing in number and substance. Whether financial liberalisation indeed contributes to economic growth remains an empirical issue. Moreover, given that different countries have different financial infrastructures, such an outcome may differ from country to country and over time. In the subsequent chapters, an empirical investigation has been conducted to examine this linkage using data from Kenya, South Africa and Tanzania.

⁷ See Ikhide (1992) for more details.

CHAPTER 4

FINANCIAL LIBERALISATION AND OTHER MACROECONOMIC VARIABLES: A DYNAMIC LINKAGE

4. Introduction

In this chapter, the various linkages that exist between financial liberalisation (proxied by interest rate liberalisation) and economic growth are traced. The chapter is organised as follows: In section 4.1, the theoretical and empirical underpinnings of McKinnon's complementarity hypothesis are discussed. In section 4.2, the link between financial liberalisation, proxied by a flexible interest rate, and savings is reviewed. The link between financial liberalisation and investment efficiency is highlighted in section 4.3, while, in section 4.4, the empirical evidence is presented on the link between financial liberalisation and financial deepening. In section 4.5, a brief overview of the link between financial liberalisation and economic growth is presented. The debate on the causal link between financial development and economic growth is discussed in section 4.6. In section 4.7 the emphasis is on the effect of financial liberalisation during stabilisation, while, in section 4.8, the chapter is summarised.

4.1 Money and Physical Capital

4.1.1 McKinnon's Complementarity Hypothesis

McKinnon's explanation of how the real deposit rate of interest affects savings, investment, and economic growth rests on the following assumptions. One, all economic agents are confined to self-finance; and two, indivisibilities in investment are of considerable importance. McKinnon (1973) argues that, since investment expenditures are lumpier than consumption expenditures, potential investors must accumulate money balances, i.e. outside money, prior to their investment. The more attractive the process of accumulating money balances (or the higher the real deposit rates of interest), the greater the incentive to invest. The relative lumpiness of investment expenditure implies that, in

this situation, the aggregate demand for money will be greater the larger the proportion of investment in total expenditures.

McKinnon's complementarity can be reflected in the following demand for money function.

$$M/P = f(Y, I/Y, d-P^e)$$

Where: M/P is the real money stock broadly defined to include savings and time deposits, and currency in circulation ($M2$); Y is the real gross national product (GNP); I/Y is ratio of gross investment to GNP; and $d-P^e$ is the real deposit rate of interest.

It is worth noting that McKinnon's complementarity works both ways, the conditions of money supply have a first order impact on decisions to save and invest (McKinnon, 1973). McKinnon argues that the financial markets in less developed countries are fragmented. The repressed capital markets that typify these countries therefore retard the efficient allocation of resources. This is what forces these countries to rely heavily on internal sources of finance, which lead to low quality investment and the retention of traditional technology. The dependence on internal sources of funds is especially high for new entrants from the barter to the monetised sector of the economy. This is so because new entrants may either be unfamiliar with the external sources of funds or lack the necessary collateral for borrowing. The solution in this case, therefore, is to encourage the flow of funds into the organised money market, and to extend the provisions of financial institutions into those sectors of the economy that lack them. McKinnon contends that, in such a context, monetary policy has an important role to play since it can strongly affect private propensities to save and invest. For instance, a policy of high interest rates helps to mobilise savings and channel them into more productive investment opportunities. Hence, complementarity exists between money and physical capital in the production process of less developed countries.

4.1.2. McKinnon Conduit Effect

According to McKinnon (1973), the demand for money changes as households and firms shift from consumption to investment because investment is lumpier and require a longer period of accumulation from a given income stream before disbursement. Therefore, his proposition is that a rise in the rate of interest increases the volume of financial savings through financial intermediaries and thereby raises investment funds, a phenomenon he calls the “conduit effect”. The realised investment actually increases because of the greater availability of funds.

Under the equilibrium condition postulated by McKinnon, the ratio of desired and realised investment to income (IR) can be expressed as:

$$\begin{aligned} \text{IR} = \text{Minimum of: } \quad & \text{IR}^d = f(r, d-P^e), & f_1 > 0, f_2 < 0 \\ & S^d = F(r, d-P^e), & F_1 > 0, F_2 > 0 \end{aligned}$$

Where; IR^d is the desired investment to income ratio; S^d is the desired savings to income ratio; r is the rate of return on capital; and $(d-P^e)$ is real deposit rate of interest.

Because the investment-demand function generates excess demand at the disequilibrium or (negative) real interest rate $(d-P^e)$, it is not the operational function. Instead, savings = $F(r, d-P^e)$, a positive function of $(d-P^e)$, determines the volume of loanable funds and therefore investment. While it may be the case that the demand for investment declines with the rise in real interest rate, realised investment actually increases because of the greater availability of funds (McKinnon investment effect). This conclusion, however, applies only when the capital market is in disequilibrium, i.e. in a rationing situation where the demand for funds exceed the supply. Otherwise, the rise in the interest rate

would reduce investment demand below the supply of loanable funds, and, thereby, realised investment would tend to decline. McKinnon characterised such a situation as the particular case of equilibrium corresponding to neo-classical theory¹.

4.1.3. McKinnon's Investment Function

Although a number of studies have attempted to investigate the efficiency of financial liberalisation within the framework of McKinnon's complementarity hypothesis, the majority of these studies have demonstrated very little effort to understand the factors that govern the level of investment in less developed countries. One of the main reasons why this area has not been fully explored empirically is that it is not very easy to come up with a series of average rates of return to physical capital that is fully compatible with McKinnon's theory.

McKinnon's investment function can be expressed as follows²:

$$I/Y = F(r, d - P^e)$$

Where:

I/Y = the ratio of investment to real monetised income;

Y = real monetised income

P^e = expected rate of inflation

$d - P^e$ = the real rate of interest on savings deposits.

r = the average real rate of return to physical capital

According to McKinnon's complementarity hypothesis:

¹ See also Galbis, 1979.

² See also Laumas, 1990.

$\delta F / \delta r > 0$; and

$\delta F / \delta (d - P^e) > \text{or} < 0$

Although McKinnon's investment function may be appealing, Laumas (1990) argues that this function is not properly specified. The reasons for this argument are two-fold. First, it ignores the role of price expectations on the level of investment. Second, the function does not account for the predominant role of government investment in such countries. As Laumas argues, both factors have an important bearing on the complementarity hypothesis. It has been widely acknowledged that expectations of changes in the price level are of considerable significance in determining the level of business investment. Galbis (1979) also argues that there is complementarity between private and public investment when the latter provides social overhead capital and facilitates private investment. It would follow, conversely, that if the public sector is engaged in the production of final goods, it would tend to compete with the private sector. Elsewhere Laumas (1990) has argued that even when the government tries to assist the private sector, for instance, by providing infrastructure investment, due to the relative scarcity of resources, government often ends up competing with the private sector for limited availability of savings, skilled labour force and foreign exchange (Laumas 1990; 1962). This has the effect of bidding up the prices of scarce resources for the private sector. In order to maintain the profit margin, the private entrepreneur is forced to raise his or her prices. Since the demand for industrial goods is relatively elastic, the entrepreneur is faced with the choice of losing either sales or the profit margin. In either case, the prospects of expansion for the firm appear to diminish. The extreme scarcity of outside sources of funds further impedes his or her expansionary plans. In light of these circumstances a proper test of the complementarity hypothesis should be conducted with the recognition that the private and public sectors compete for scarce resources. This is important since the crux of McKinnon's argument relates to the impact of financial liberalisation on the degree of capital intensity and the level of output in the process of economic development (Laumas 1990, Roychoudhry 1977).

4.1.4. Some Empirical Studies on McKinnon's Complementarity Hypothesis

The results of empirical studies on McKinnon's complementarity hypothesis can be categorised as follows: studies with results that were somewhat consistent with the McKinnon's complementarity hypothesis, and studies with contradictory results. Some of the studies where results are in one way or the other consistent with McKinnon's complementarity hypothesis are those of Ajewole (1989), Thornton (1990), Khan and Hasan (1998), and Nyagetera (1997), among others. Ajewole (1989), for example, examines the relevance and workability of the McKinnon model for money demand in Nigeria and its implications using the OLS method. The results of this study show a significant conduit effect between money assets and other physical assets in the Nigerian economy. Specifically, the study shows that the real demand for money in Nigeria is considerably influenced by real income and the return on physical assets. Thornton (1990), using annual time series data between the period 1964-84, tests the relevance of McKinnon's complementarity hypothesis in India. In his model, the demand for money is made a function of the saving ratio and, simultaneously, saving is made a function of real money balances. Thornton finds strong support for the complementarity hypothesis in both the demand for money and saving function. Nyagetera (1997), in a study titled 'Financial repression in Tanzania: Its impact on savings, investment, credit and growth', tests McKinnon's complementarity hypothesis using Tanzanian data. Nyagetera finds the savings ratio coefficient to be positive as expected, thus confirming McKinnon's complementarity hypothesis in Tanzania. Khan and Hassan (1998) also examine the relationship between financial liberalisation, savings, and economic development in Pakistan. Using time-series data, the study finds strong support for McKinnon's complementarity hypothesis. The coefficients of the saving ratio in the money demand function and real money balances in the savings function are found to be both positive and statistically significant.

Contrary to the above results, there are some studies that either fully or partly reject McKinnon's complementarity hypothesis. Fry (1978), for example, concluded that "one would have to look a long way down the development ladder... to some of the world's least developed countries in a search for complementarity" after empirically testing McKinnon's complementarity hypothesis using pooled time series data of 10 Asian countries. According to this study, the demand for money function does not support McKinnon's complementarity hypothesis. The savings ratio coefficient in the money demand function is found to be negative and statistically significant. This implies that investment in these Asian LDCs as a whole cannot be characterised as self-financed. In addition, Fry finds that money is not the only financial respiratory of domestic savings. Fry argues that this conclusion makes sense since the Asian LDCs used in the analysis have achieved stages of financial development well beyond the phase in which the complementarity assumptions are more reasonably expected to hold. Similarly, Gupta (1984), while conducting a study on 25 Asian and Latin American LDCs using 2SLS, found no wide support for the complementarity hypothesis. The results of Mwega et al's (1990) on the McKinnon-Shaw hypothesis in Kenya also failed to support the hypothesis. Instead, the results show that the private savings rate and real demand for money are non-significantly responsive to a representative deposit rate of interest.

4.2. Financial Liberalisation and Savings

It is now generally accepted that the effect of financial liberalisation on savings is theoretically ambiguous. This is not only because the link between interest rate levels and savings is itself ambiguous, but also because financial liberalisation is a multi-dimensional and phased process, which sometimes involves reversals (Bandiera, et.al, 1999). While the proponents of the financial liberalisation hypothesis still believe that financial liberalisation will unambiguously lead to increased savings, studies in a number of countries have indicated that there is no firm evidence that financial liberalisation will increase savings (Cho and Khatkhate, 1990; Khatkhate, 1988; Gupta, 1987, Giovannini,

1983; Bandiera et al, 1999). To some extent, liberalisation has been associated with a fall in savings (Bandiera et al, 1999). Consequently, it would be unwise to rely on an increase in private savings as the channel through which financial liberalisation can be expected to increase growth. Cho and Khatkhate in a study of the liberalisation experience of five Asian countries, for instance, conclude that financial reform, whether comprehensive and sweeping or measured and gradual, does not seem to have made any significant difference to the savings and investment activities in the liberalised countries (Cho and Khatkhate, 1990). Studies of a number of sub-Saharan African countries surveyed by Nissanke (1990) reach much the same conclusion: that financial liberalisation and deregulation, often as part of structural adjustment programmes, have had very little effect on improving the size and allocation of savings.

According to Bandiera et al (1999), the effects of financial liberalisation on private savings is theoretically ambiguous, because the link between savings and interest rate levels is unclear, and because financial liberalisation is a phased, multidimensional process, which sometimes involves reversal. As the authors put it, other dimensions of financial liberalisation such as increased household access to housing finance or consumer credit might reduce rather than increase private saving (Muellbauer and Murphy, 1990; Jappelli and Pagano, 1994). Bandiera et al (1999), in a study of eight developing countries, conclude that “For the present, our results must be taken as an indication that there is no firm evidence that financial liberalisation will increase saving” (Bandiera et al, 1999:1). Previous studies on this subject have shown that while a negative real interest rate reduces savings, positive and high real interest rates ambiguously increase savings.

4.2.1. Savings and Interest Rate – Some Empirical Evidence

The relationship between interest rates and savings has been the subject of intense debate among economists for many years. Yet, to date, there has not emerged any unanimity of opinion despite a fairly large body of theoretical and empirical research. On the one

hand, there are authors who find empirical support for the proposition of a significantly positive interest responsiveness of savings. On the other hand, there are those who find little or no support for the above-mentioned proposition. Studies, which have found some support for positive interest rate elasticity of savings include those of Fry (1977; 1978), Yusuf and Peters (1984), Rossi (1988), Leite and Makonnen (1986) and De Melo and Tybout (1986), among others.

In a series of studies, Fry finds fairly consistent support for the positive effect of real interest rates on savings. Fry (1977; 1978), in studies of Portugal and Turkey, respectively regresses the ratio of national savings to GNP on the growth rate of GNP, the foreign savings rate, and the real deposit rate of interest. In both cases, the interest rate coefficient was positive and significant. In a more popular study, Fry (1978) tries to test the validity of the McKinnon-Shaw hypothesis by using annual observations from seven Asian LDCs. On the basis of the estimated savings functions, Fry concludes that the real rate of interest exerts a positive influence on the ratio of domestic savings to the gross national product (GNP). The author finds that a 10% increase in the real rate of interest, *ceteris paribus*, exercised a positive influence on the ratio of savings to GNP by approximately 1.4-2.1%. Fry therefore concludes that there is, at least for sample countries, support for the McKinnon-Shaw hypothesis.

Using a life-cycle model of the ratio of national savings to GNP on pooled time series data for seven Asian countries, Fry and Manson (1982) employ the population dependency ratio as one of the independent variables. The dependency ratio in this case was proxied by the population under age of 14 years divided by the population aged between 15 and 64 years. They obtained a positive and significant coefficient for a real interest rate variable defined as a time deposit rate less the expected inflation multiplied by the growth rate of GDP. Later, Fry (1988) used the life cycle approach in a pooled time-series study of 14 Asian countries using data from the 1960s and 1970s. He found

that "... both the value and the significance of the real deposit rate are increased marginally when Korea is omitted".

Another pioneer work on this subject is that of Yusuf and Peters (1984). The authors formulate an aggregate savings function of the following form:

$$S = f(Y, PY, g, P, r, Sf)$$

where: S is the aggregate saving; Y is current income; PY is permanent income; g is the rate of growth in income; P is inflation rate; r is real rate of interest on time deposits; and (Sf) is foreign savings. Aggregate savings in this case is measured by either gross domestic savings (GDS) or gross national savings (GNS), the former being defined as gross domestic income minus consumption, while the latter as GDS plus net current transfers and net factor income. The authors maintain that in the case of Korea, GDS is a more accurate measure of domestic savings efforts since the large interest rate payments due on Korea's foreign debt call for an effort at resource mobilisation appreciably in excess of investment needs (Yusuf and Peters, 1984:25). In order to derive real values of the relevant variables, the GNP deflator is used. All of the equations are estimated by means of ordinary least squares (OLS) method, and the generalised least squares (GLS) method is applied to correct for first order serial correlation. Twelve equations are estimated and in some of them, a dummy variable is incorporated in order to capture the effects, if any, of the second oil shock and Korea's first serial recession in two decades. The results of the study indicate that all of the estimated equations perform in terms of the standard error of the regression, ranging from 0.061 to 0.087. With respect to the issue of savings, the main conclusion is that, whether GNS or GDS is taken as the dependent variable, there does exist a significantly positive relationship between the real rate of interest on time deposits and savings, thus providing support to the McKinnon-Shaw proposition that financial liberalisation matters to savings behaviour.

Rossi (1988), while using pooled time series and cross section data from six developing countries, explicitly examines the liquidity constraint. In the estimating equation, private consumption for the next period is expressed as a function of real disposable income, real government expenditure, real rate of interest (defined as a time deposit rate or foreign interest rate adjusted for inflation), and a borrowing constraint. In three regions (i.e. Middle East and North Africa, Southern Europe, and Central America), the coefficients on the real interest rate are positive and significantly different from zero. Moreover, if the years 1982 and 1983 are excluded from the sample to remove possible distortions caused by the onset of the international debt crisis, the same results hold for the South American sample. Rossi derives the interest rate elasticity of consumption in which a negative sign corresponds to a positive saving elasticity. Depending on the specification used, the elasticities range from -0.06 in sub-Saharan Africa to -1.25 in the Middle East, and North Africa.

A similar conclusion is derived from Leite and Makonnen (1986). The authors found some tentative evidence of a positive relationship between interest rate and savings for the six member countries of the Banque Central des Etats de l'Afrique de l'Ouest (BCEAO). Using pooled cross country data consisting of 14 annual observations for each of the six BCEAO member countries and covering the period 1967-80, the authors test empirically the following model of the determinants of overall savings on the above-mentioned countries.

$$\text{GPS} = f(\text{YD}, \Delta\text{YD}, \text{GPS}_{-1}, \text{SR}, \text{X/GDP})$$

Where: GPS = gross private savings; YD = disposable income; ΔYD = changes for disposable income; GPS_{-1} = lagged gross private savings; SR = real rate of interest; X/GDP = the share of exports in gross domestic product (this measure is intended to capture the distributional effect arising from the difference in the propensity to save between exports and other sectors of the economy). National data at constant prices are

obtained from national sources, and real rates of interest are computed using the savings deposit rates and the actual movements in the consumer price indices. A total of eight equations are estimated by the weighted least squares method - using a normalised variables with the standard errors of equations estimated for each of the BCEAO countries in order to correct for heteroscedasticity. All equations performed relatively well on the basis of statistical fit. In all equations, a majority of the coefficients of the explanatory variables is found to be statistically significant, and in all equations, the interest rates are found to be positively related to savings.

In Uruguay, De Melo and Tybout (1986) regress the ratio of gross domestic savings to GDP on real interest rate, the growth rate of real GDP, and the ratio of foreign savings to GDP, and find a positive but insignificant interest rate coefficient. However, when the data period is restricted to 1962-73, the interest rate coefficient is positive and highly significant.

Contrary to the findings of the above studies, there are studies which have found very little or no support for positive interest elasticity of savings. These include studies such as Williamson (1968); Gupta (1984,1987); Giovannini (1983); Bandiera et al (1999); Warman and Thurwill (1994); Ocampo et al (1985); and Arrieta (1988), among others. One of the earliest studies in this regard is a cross-section study of the determinants of personal savings in six Asian countries by Williamson (1968). In this study, the real rate of interest and permanent and transitory disposable income are used as explanatory variables in the equation to explain personal savings. In this study, very little support is offered for the view that interest rates play an important role. In five of the six countries in the sample, the interest rate elasticity of saving is negative and the regression coefficients are not statistically significant.

In three studies on Asian countries, Gupta reports mixed results for the influence of interest rates on savings. In the early study, Gupta (1970) finds that personal saving in

India respond positively to real rates of interest and per capita disposable income. Gupta (1984a) estimates savings function for 12 countries. He postulates that increases in the interest rate would affect financial saving positively and physical saving negatively. Accordingly, the study separated financial saving from saving in the form of physical capital. The explanatory variables include permanent income, transitory income, expected inflation, unanticipated inflation, a nominal interest rate, and the financial intermediation ratio. In the financial saving equation, the rate of interest is only significant and positive in three cases for which an interest rate is defined. In the physical assets equation, the interest rate variable is negative and significant in four cases. In Gupta (1984b), a similar set of independent variables is used in an equation to explain aggregate real savings for 12 Asian countries over the period 1960-77. Gupta concludes that support for the McKinnon-Shaw hypothesis is quite limited, reporting a positive and significant coefficient for the real interest rate in only four countries. In the later study, Gupta (1987) analyses separately countries from Asia and Latin America in pooled cross-section and time series data for the 1967-76 period. In this study, the author regresses gross national savings on a nominal interest rate, permanent income, transitory income, the expected rate of inflation, the financial intermediation ratio, and an inflation uncertainty variable. Even though the results are sensitive to the estimation technique employed, the author finds that financial conditions did not affect savings in Latin America but that they did in Asia. Thus, for the Asian countries, a positive and significant interest rate coefficient is generally reported, but for the Latin American countries, the variable is not significant. Gupta however, concludes that pooling a cross countries data is inappropriate.

The stability of Fry's (1978) results, which assert that the real rate of interest exerts a positive influence on savings, is, however, challenged by Giovannini (1983). In this study, Giovannini casts doubts over the significantly positive interest rate elasticity of the savings function, and consequently on Fry's results. The author argues that if a larger sample is taken into account in the Fry model, the interest elasticity of savings will not be

as significant as reported in Fry (1978). The author also questions the use of a Keynesian type of savings function in the Fry model because of the assumptions concerning the functional form and the exogeneity of the instruments used in the estimation. Consequently, Giovannini (1983) re-estimates Fry's equation for a later time period by using domestic rather than national savings and fails to find a significant coefficient for the real interest rate.

In a later paper, Giovannini (1985) re-estimates observations for Korea for the years 1967 and 1968, and finds that this eliminates the statistical significance of the real interest rate variable. Using the data for the mid-1960s and the 1970s, he also finds that the coefficient on the real interest rate variable is positive and significant in only 5 out of 18 countries, although the sign of the coefficients was positive in all but two of the cases.

Bandiera et al (1999) confirms that there is no strong reliable interest rate effect on savings in a sample of eight developing countries. The author constructs a 25 year time series index of financial liberalisation for each of the eight developing countries, namely; Chile, Ghana, Indonesia, Korea, Malaysia, Mexico, Turkey and Zimbabwe. This is employed in an econometric analysis of private savings in these countries. In this study, a different pattern of effects is found across these countries. In summary, liberalisation appears to have had a significant positive direct effect on savings in Ghana and Turkey, and a negative effect in Korea and Mexico. No clear effect is discernible in the other countries. The authors therefore conclude that there is no evidence of significant positive and sizeable interest rate effects, and hence there is no firm evidence that financial liberalisation increases savings. In another study in Mexico, Warman and Thirlwall's (1994) results find no evidence at all to support the argument that total savings are related to interest rates.

Ocampo et al (1985) conduct a country study on the determinants of savings in Columbia for the period (1950 – 1980). In this study, the authors formulate the following model:

$$S = S(Y, Y_T, r, L, IPC)$$

Where: S is real gross savings, Y is income, Y_T is transitory income as defined by the deviations of current account from its normal levels, r is real rate of interest, L is liquidity as defined by the ratio of money supply to GNP, and IPC is the rate of inflation. The model is tested using the following alternative dependent variables. First, the model is tested by using the real total savings deflated by the implicit price index of domestic demand as the dependent variable; in the second test, the ratio of savings to gross income is used as the dependent variable. In both cases, the Chocrane-Orcut method is used in order to correct for autocorrelation. Based on the results from the estimated equations, Ocampo et al conclude that the hypothesis claiming a positive dependency of savings on financial conditions in terms of higher real rates of interest is not supported for the Columbia case since the effect of the real interest rate has a very low statistical significance, even though it is positive. The authors, however, caution that the above results are preliminary since a thorough discussion on the possible endogeneity of some explanatory variables is not carried out (Ocampo et al, 1985: 121).

Arrieta (1988) surveys numerous empirical studies carried out on the relationship between savings, investment, and the interest rate. The majority of the studies, however, conclude either that the relationship between saving and interest rate is not empirically substantiated or, in the few cases where it is found to be statistically significant, that the magnitude is found to be very small.

More recently, McKinnon (1991) acknowledges that aggregate savings, as measured in the GNP accounts, do not respond strongly to higher real interest rates (McKinnon, 1991:22). This thus supports the argument that, overall, a change in the real interest rate has an ambiguous effect on savings, largely because of the competing income and substitution effects that changes in interest rates give rise to.

Based on the empirical literature reviewed in this section, the following conclusions can be drawn. First, the debate on the interest rate elasticity of savings remains an empirical issue and is at best controversial. Second, even if the interest rate does not unambiguously affect domestic savings, it does, at least, positively influence the level of financial savings – provided that the positive substitution effect between consumption and savings (i.e. increased savings) exceeds the negative ‘higher income’ effect (i.e. reduced savings). Third, interest rate elasticity of savings differs from country to country and varies over time.

4.3. Financial Liberalisation and the Efficiency of Investment

The effect of financial liberalisation on investment in a number of developing countries has drawn much attention in the recent literature. The major thrust of the literature has been to understand the mechanism by which interest rate deregulation and the elimination of other forms of financial repression affect total investment.

There exist two channels through which financial liberalisation may lead to an increase in the quantity and quality of investment (Thornton, 1990). One is that higher interest rates increase the availability of domestic credit to finance investment. This channel, however, is hard to distinguish from the effect of interest rates on savings. The second potential channel is through McKinnon’s (1973) hypothesis of the complementarity of money and physical capital. In this hypothesis, it is argued that because investment projects are lumpy, investors must accumulate their investment balances in the form of deposits until the required amount of principal is reached. The more attractive the returns on deposits, the more willing investors are to accumulate them. Specifically, it is argued that under financial repression, the limited supply of credit is likely to be rationed across projects according to criteria that do not correspond with social returns.

De Meto and Tybout (1986), for instance, argue that, when interest rates are decontrolled, two types of improvements may be induced. First, a larger volume of investment can be financed because savings have increased. If international capital movements have been also liberalised, additional funding becomes available from abroad in the form of capital inflows as well. Second, projects with expected returns below the new market-clearing rate will drop out, while previously rationed high-return projects are afforded the chance to compete for funds.

In a study in 12 Asian developing countries, Fry finds that the ratio of domestic credit to nominal GNP is positively and significantly related to real interest rates (Fry, 1981a). Fry (1981b) gives similar results for seven pacific basin developing countries. In an earlier study, Fry (1980) finds a strong positive and significant relationship between the availability of domestic credit and investment in a pooled time-series study of 61 developing countries. Fry (1986) also reaches similar conclusions in a study of 14 Asian developing countries.

However, one question that has emerged from the literature is whether the mechanism through which financial liberalisation affect economic growth is based on the productivity or the volume of investment. While studies such as Kapur (1976) and Mathieson (1980) argue that increased growth is the result of an increase in the quantity of investment, McKinnon (1973) and Shaw (1973) maintain that increased growth results not only from increased quantity but also quality of investment.

Greenwood and Jovanovic (1990), Bencivenga and Smith (1991), Levine (1992), and Saint-Paul (1992) present theoretical models in which the gains from increased financial development stem from increased efficiency in the allocation of investment rather than from larger volume of investment.

Galbis (1977) further formalises this notion by modelling an economy with two sectors. Sector one, according to the author, is a traditional sector where the rate of return on investment is lower. In addition, the investment in this sector is self-financed. An increase in the deposit rate will reduce investment in this sector. Firms will find it more rewarding and profitable to invest their surplus profits in a bank rather than using them to finance their own investment³. Sector two is the modern sector where the rate of return on investment is higher. Investment is financed through the banking system. Under conditions of financial repression, the supply of bank deposits from sector one will be lower because of the deposit rate, which is kept too low. In this case, sector one firms would rather invest in their own firms. This limits the amount of credit that can be supplied to sector two, and hence the amount of investment which they can undertake. Liberalisation, by raising deposit rates, increases the supply of deposits to the banking sector from sector one, where firms cut their investment. This thus increases the supply of credit to sector two. Since the rate of return on investment in sector two is higher, the quality of investment in the economy rises and hence growth increases, even if the quantity of investment is unchanged.

Gregorio and Guidotti (1992) also estimate that some 75% of the positive correlation between financial intermediation and growth is due to increased investment efficiency, rather than an increased volume of investment. Gelb (1989) finds that most of the positive association between real interest rates and growth stems from the efficiency effect rather than the level of investment.

Cho (1988) argues that financial reform has led to an increase in allocative efficiency of investment because the cost of borrowing in different sectors and industries has narrowed sharply since 1980. The author argues that, abstracting from risk and an economy can be said to allocate capital efficiently if the marginal return on uncertainty, investment across sectors is equalised.

³ See also Gibson and Tsakalatos, 1994: 588.

The gains in investment efficiency after financial liberalisation have been documented in a number of individual country studies using firm level data. In the case of Ecuador, Jaramillo et al (1992) find that, after controlling for firms' other characteristics, there is an increase in the flow of credit to technologically more efficient firms after financial liberalisation. This result is shown to be robust to changes in assumptions about production functions and in estimation methods. It was the larger Ecuadorian firms that were more technologically efficient, so that the flow of credit moved from smaller to larger firms after liberalisation. This shows that the small-scale firms had been subsidized during the period prior to reform in Ecuador. The shift in credit toward large firms was therefore a case in which credit shifted to the area that had been discriminated against under the system of financial repression.

In Indonesia, credit was reallocated from manufacturing and agriculture to other sectors after financial deregulation. Siregar (1992) and Harris et al (1992) find that, after liberalisation, the more technologically efficient the firm, the greater the proportion of new credit it received in Indonesia⁴. For Korea, Atiyas (1992) presents evidence that small firms gained improved access to external finance after liberalisation. Credit flows in this case, moved from light industrial manufacturing to services, utilities, and construction. In a similar study, Gelos (1997) provides econometric evidence that financial constraints were eased for small firms in the Mexican manufacturing sector following financial liberalisation.

Likewise, Morisset (1993) finds that although the effect of financial liberalisation on the quantity of investment was weak (and even negative in some tests) in Argentina, the effect on the quality of investment was consistently positive. In Sri Lanka, there is some evidence of greater variation among the lending rates faced by different borrowers as risk has begun to be reflected in the terms of lending.

Although the bulk of the evidence seems to argue that liberalisation has somewhat contributed towards more efficient credit allocation, this argument is not unanimous. De Gregorio (1992), for instance, argues that credit to the private sector was negatively related to growth in the 1970s and 1980s in Latin America. The author attributes this negative correlation to inefficient lending by banks in light of poor regulatory incentives. Following liberalisation in Australia, firms increased their debt levels and banks took on more risky loans. Even though these outcomes do not in themselves mean that loans were inefficiently allocated, the evidence presented by Lowe (1992) indicates that Australian banks under-invested in effective screening methods in 1980s, and therefore lacked the capacity to engage prudently in high-risk lending.

Capoglu (1990) in examining the effect of reforms in Turkey, which began in 1980, found that they had made very little difference to the functional efficiency of the financial sector (as measured by the spread between lending and deposit rates). The author argues that even when Cho's (1988) method of assessing the quality of investment is used, there is still no evidence that financial reforms in Turkey led to a rise in investment efficiency.

Although a number of arguments presented in this study assume that the financial sector is both an effective mobiliser and allocator of funds according to the profitability of projects, it is not clear whether financial system reforms, even with the relevant content, would be an effective and efficient allocator of finance to the borrowing sector. As Khatkhate (1996) puts it, what is crucial from the output generating point of view is the link between the financial system and real capital expenditure. In other words, what is crucial is the ability of the financial system to ensure the most efficient transformation of mobilized funds into real capital. It is generally assumed that the allocative mechanism built into the asset management policies of financed intermediaries is necessarily an

⁴ For more details, see Caprio et al (1994) and Williamson and Mohar 1998.

optimum one, so that investments financed by them is the most productive (Khatkhate, 1996:137). This assumption suggests that those who use savings transferred initially to the financial institutions are the entrepreneurs of proven merit and are endowed with skills and risk-bearing ability, and that the financial institutions make credit available precisely to those sectors where the necessary preconditions for efficient production exist.

However, the question that is pertinent is whether financial institutions prefer borrowers who are most productive socially, or alternatively, whether mainly the most efficient producers apply for loans from these institutions. Financial institutions, being profit maximisers, tend to seek avenues for employment of their funds where the profit rate is high, the risk of non-repayment small, and the cost of administering loans low.

Experience has shown that entrepreneurs in developing countries face formidable risk, which deters the financial institutions from supplying the entrepreneurs' credit needs. The entrepreneurial risk in these countries has two facets. The first side concerns the ability of the entrepreneurs to avert risk, and the second concerns the relative position of the local entrepreneur in regard to the size of the risk. The risk-averting behaviour of an entrepreneur has been demonstrated to be a function of market imperfections (Khatkhate, 1996:137-138).

Moreover, the difficulties of the local entrepreneurs tend to multiply since they do not have access to the knowledge, information and expertise that foreign firms, or those owned by immigrants, possess by virtue of their contact with more developed countries. In relation to the indigenous entrepreneurs, therefore, expatriate entrepreneurs face a smaller risk of losses, which can be covered by a smaller quantum of profits. This means that financial intermediaries will only ensure a flow of credit to those entrepreneurs who have security to offer, regardless of the degree of productivity. Credit flows will be diverted to large-scale industries rather than the small-scale ones, to expatriates and

immigrants rather than to local industrialists, to urban rather than rural industry. According to Khatkhate, allowing the banks to adjust from strict control to a large degree of freedom after reform can be dangerous if bankers do not upgrade their skills in risk assessment and their information about new potential clientele. It is therefore necessary to have in place the infrastructure that would facilitate the bank management's ability to readjust the asset portfolio in a manner that would promote the dynamic class of borrowing enterprises. Otherwise the banks may go in for safe havens like risk-free government bonds for investing their funds rather than searching for productive enterprise (Khatkhate, 1996:139).

The second important issue is the lack of information channels. There is a need for banks to painstakingly build-up long-term restructuring with their clients, through which information capital is accumulated. The supply of bank loans depends as much on the efficiency of their information channels, which directly affect the expected return and risk of loans, as on the cost and availability of resources at bank's disposal, the rate of return on substitutes such as government bonds, the owner's disposition to risk, and any regulatory constraints. Also, human capital and management systems should be considered. It is widely recognised that without skilled and appropriately motivated staff and the properly designed incentive system, even the best bank portfolio can turn sour. Therefore, the financial reforms strategy should also underscore the human capital development and allied activities, and not just interest rate adjustments, restitution of banks, removal of directed credit and so on. In other words, even though financial liberalisation is necessary, it may not be a sufficient condition for allocative efficiency if the basic ingredients discussed above are not put in place.

4.4. Financial Liberalisation and Financial Deepening

The theoretical link between financial liberalisation and financial deepening is based on the McKinnon (1973) and Shaw (1973) hypotheses. According to these hypotheses, financial liberalisation enables savers to switch some of their savings from unproductive real assets to financial assets – hence expanding the supply of credit in the economy. In this way, financial liberalisation plays a crucial role in financial deepening. According to Ikhude (1992), positive real interest rates favour financial savings over other forms of savings and therefore promote financial deepening. In its own right, financial depth contributes to growth by improving the productivity of investment. This linkage corroborates further the positive role played by financial liberalisation on economic growth.

A number of studies have been conducted in order to examine the linkage between financial liberalisation and financial deepening, but with varying results. Mosley (1999), for example, while examining the impact of financial liberalisation on access to rural credit in four African countries finds that the impact of financial sector reforms on financial depth, as measured by bank deposits and M2 as a percentage of GDP, varies between countries. In each of the three Asian LDCs, a marked financial deepening took place. In both Bangladesh and Nepal, bank deposits increased by around eight percentage points of GDP between 1985 and 1995, while in Laos bank deposits rose by almost seven percentage points of GDP between 1990 and 1995, albeit from a very small base. In contrast, there was little change in financial depth in Madagascar, and a small decline in Malawi. However, the decline in Malawi could be partly explained by the growth of NBFIs deposits, which were excluded from bank deposits and M2 data. Tanzania, however, suffered a sharp contraction of financial depth in the second half of the 1980s, but recovered almost half of the fall in the first half of the 1990s. In Uganda, a small recovery was achieved in the first half of the 1990s after the collapse in financial depth in

the 1980s, but the financial system remained very shallow. In Zambia, the reforms were unable to prevent a continued rapid decline in financial depth, which began in the first half of the 1980s. Mosley attributes the better performance of the Asian LDCs in enhancing financial depth to the greater macroeconomic stability in these countries. Inflation rates were relatively moderate in the three Asian countries, which allowed real deposit rates to be generally positive (as in Bangladesh and Laos) or only marginally negative (as in Nepal). In contrast, the five African LDCs suffered high and more volatile rates of inflation. Under these conditions, it has been difficult to maintain deposit rates at positive real levels, especially during bouts of very high inflation. Moreover, high inflation made rates of return on current account deposits, which account for a large share of deposits, steeply negative.

There are two other factors that may have contributed to the lack of financial deepening in the African LDCs. First, the removal of foreign exchange controls allowed residents to purchase and hold foreign currency legally, while rapid exchange rate depreciation would have made the holding of foreign currency assets more attractive relative to domestic currency assets. Second, the introduction of treasury bills (TB) auctions led to steep rises in TB rates, often surpassing time deposit rates, and this is likely to have led some of the larger depositors to substitute TBs for time deposits⁵.

Ikhide (1992) also conducts a study on financial deepening, credit availability and the efficiency of investment in 17 African countries. His analysis uses three variants to test the aspect of financial deepening in these countries. The results of this study show that the real rate of interest turned out to be positive and significant in 12 out of the 17 countries in the sample. The variable was significant in Kenya, Ghana, Nigeria, Cameroon, Burundi, Rwanda, Sierra-Leon, Ethiopia, Niger, Zambia, Malawi, Cote d'Ivoire, and Mauritius. Although the real interest rate was positive in Tanzania, in Botswana and Lesotho it was not statistically significant.

4.5. Financial Liberalisation and Economic Growth

The empirical proposition is that financial liberalisation (proxied by a moderate interest rate increase) and economic growth are positively related. Fry (1980), in a study of 7 Asian countries, concludes that around half a percentage point in economic growth was foregone for every percentage point by which the real rate of interest is set below its equilibrium level.

Lanyi and Saracoglu (1983) also find a positive and significant relationship between interest rates and the rate of growth of real GDP. The World Bank also finds a positive relationship between real interest rates and economic growth in 33 developing countries for the period 1965-85 (World Bank, 1989).

Roubin and Sala-I-Martin (1992) use a more sophisticated method to examine the link between financial liberalisation and growth. The authors start with a general equation, which was meant to capture the main determinants of growth for a cross-section of developing countries, i.e.

$$Y = F(\text{Human Capt}, \text{Pinv}, \text{Pol.Inst})$$

where:

Y = the growth rate between 1960 and 1985;

Human Capt = various measures of human capital (represented by primary and secondary school education).

⁵ See also Adam (1995).

P_{inv} = a distortion index for the price of investment goods from the 1960s (PPP price of investment goods); and $Pol.Inst$ = various measures of political instability (i.e. number of assassinations, revolutions, and coups). Later, various factors representing the degree of financial repression are added to this equation. These include a general distortion index, dummy variables when real interest rates are either negative or strongly negative (i.e. less than -5 per cent), the reserve to M1, and inflation. The reserve to M1 and inflation in this case represent the extent to which the government relies on seigniorage⁶ to finance its deficit. When each of these measures is added to the growth equation, the results obtained indicate that financial repression tends to lower growth.

However, Gibson and Tsakalotos (1994) cast doubts on the Roubin and Sala-i-Martin (1992) results. The authors argue that, just like in other empirical work in this area, the results of Roubin and Sala-i-Martin (1992) could suffer from omitted variable bias because each measure of financial repression is added individually. The authors suggest that all measures of financial repression should be added together (with the exception of the distortion index) in order to avoid biasing the estimated coefficients.

Although the above literature suggests that there could be evidence in support of the positive relationship between financial liberalisation and economic growth, it should be conceded that the evidence is by no means unanimous. Khatkhate (1988), for example, finds that there is no difference in average real GDP growth between countries having below-average and above-average real interest rates in a sample of 64 developing countries. Likewise, Gupta found conflicting results in two studies. On the one hand, Gupta's (1984) cross-section study of 25 Asian and Latin American countries finds an unfavourable effect of higher interest rates on the rate of economic growth. On the other hand, Gupta (1986) finds evidence that higher real interest rates raised economic growth in India and Korea.

⁶ Seigniorage is an implicit tax levied by the government when the money base is increased.

De Gregorio and Guidotti (1995) claim that interest rates are not a good indicator of financial repression or distortion. The authors suggest that the relationship between real interest rates and economic growth might resemble an inverted U-curve: “very low (and negative) real interest rates tend to cause financial dis-intermediation and hence tend to reduce growth, as implied by the McKinnon-Shaw hypotheses. On the other hand, very high real interest rates that do not reflect improved efficiency of investment, but rather a lack of credibility of economic policy or various forms of country risk, are likely to result in a lower level of investment as well as a contraction in excessively risky projects” (De Gregorio and Guidotti, 1995:437).

4.6. Financial Development and Economic Growth: A Controversy

Financial development is one of the key elements of financial liberalisation. It plays a vital role in the process of financial liberalisation. It is a necessary condition for financial liberalisation and the two terms – financial development and financial liberalisation - are often used synonymously in the literature (Mavrotas and Kelly, 2001). The original debate on this subject can be traced to Schumpeter (1911) who argues that finance leads economic growth. According to Gurley and Shaw (1955), economic development is hindered if self-finance and direct finance are accessible but financial intermediaries are not involved. Financial intermediaries, therefore, aid in the flow of loanable funds by accumulating and transmitting financial assets from surplus spending units (savers) to deficit units (investors).

One question, which has, however, remained unanswered in the literature is whether the policy makers should first pursue financial development, or economic growth, or whether they should pursue both financial development and economic growth at the same time. In other words, between financial development and economic growth, which sector leads and which one lags in the dynamic process of economic development?

Three views exist in the literature. The first view argues that financial development, which results from financial liberalisation leads to economic growth (i.e. McKinnon, 1973; Shaw, 1973; Patrick, 1966 and Fry, 1973). The second view maintains that it is economic growth, which leads to financial development, and that where there is economic growth; financial development follows (i.e. Robinson, 1952). The third view, however, contends that both financial development and economic growth Granger cause one another.

4.6.1. Supply-Leading Versus Demand-Following Supply Response

The direction of causality between financial development and economic growth has recently received emphasis from numerous empirical works in sub-Saharan Africa countries. For a long time it has been assumed that financial development is important for economic growth, and therefore leads to economic growth (supply-leading phenomenon). Little has been discussed on the converse, where economic growth can also drive the development of financial sector, i.e. demand-following effect.

Patrick's (1966) hypothesis, for example, argues that the direction of causality between financial development and economic growth changes over the course of development. In his view, financial development is able to induce real innovation of investment before sustained modern economic growth gets underway, and, as modern economic growth occurs, the supply-leading impetus gradually becomes less and less important as the demand-following financial response becomes dominant. As Patrick puts it, this sequential process is also likely to occur within and among specific industries or sectors. For instance, one industry may initially be encouraged financially on a supply-leading basis and, as it develops, have its financing shift to demand-following, while another may remain in the supply-leading phase. This would be related more to the timing of the

sequential development of industries, particularly in cases where the timing is determined more by governmental policy than by private demand forces (Patrick, 1966:177).

According to the demand-following phenomenon, lack of financial growth is a manifestation of lack of demand for financial services. Therefore, as the real side of the economy develops, its demands for various new financial services materialise, and these are met rather passively from the financial side. In the second view, called supply-leading phenomenon, the financial sector precedes and induces real growth by channelling scarce resources from small savers to large investors according to the relative rate of return⁷.

4.6.2 Demand-Following Supply Response

Patrick (1966) defines 'demand-following' as the phenomenon in which the creation of modern financial institutions, their financial assets and liabilities, and related financial services respond to the demand for these services by investors and savers in the real economy. In this case the emerging financial system is shaped both by changes in objective opportunities (such as the economic environment, the institutional framework) and subjective responses (such as individual motives, attitudes, tastes, and preferences). During this process, the nature of demand for financial services depends upon the growth of real output, commercialisation and monetisation of agriculture, as well as other traditional subsistence sectors.

Therefore, the more rapid the growth rate of real national income is, the greater the demand will be for external funds by enterprises, which eventually leads to financial intermediation. Likewise, the more rapid the growth rate of real national income is, the greater the variance will be in the growth rates among different sectors or industries, thus, the greater the need will be for financial intermediation. The financial

⁷ See also Jung, 1986.

intermediation will thus transfer savings from the slow-growing industries to the faster-growing industries.

The implication here is that the financial system can support and sustain the leading sectors in the process of growth. The demand-following response assumes that the supply of entrepreneurship in the financial sector is highly elastic relative to the growing opportunities for profit from the provision of financial services. The assumption here is that the number and the diversity of types of financial institutions expand sufficiently, and that a favourable institutional, legal, as well as economic environment exists.

The transmission mechanism here is as follows: Due to an increase in the real economic growth rate, financial markets develop, widen, and become more perfect. This increases the opportunities for acquiring liquidity and for reducing risks, which in turn feeds back as a stimulant to real growth (Lewis, 1955; Patrick, 1966). The demand-following response means that finance is essentially passive and permissive in the growth process.

As Patrick (1966) argues, the increased supply of financial services in response to demand may not be at all times automatic, flexible or inexpensive in underdeveloped countries. The author argues that in underdeveloped countries obstacles such as restrictive banking legislation, barriers against loans and interest rates charges, as well as imperfections in the operation of the market mechanism, may by and large dictate an inadequate demand-following response by the financial system. This means that the lack of financial services will, in one way or the other, restrict or inhibit effective growth patterns and processes.

4.6.3. Supply-leading Response

The supply-leading phenomenon, in a nutshell, refers to the creation of financial institutions and the supply of their financial assets, liabilities, and related financial services in advance of their demand. According to Patrick (1966), the 'supply-leading'

has two functions. One, it transfers resources from traditional (non-growth) sectors to the modern sectors. Two, it promotes and stimulates an entrepreneurial response in the modern sector of the economy. The main distinction between the traditional and modern sector of the economy is that, whereas the traditional sector is dominated by forms of economic organisation informed by older attitudes, and by production technology inherited from the pre-modern economy, the modern sector is dominated by international modern technology, rationality, modern institutions and other forms of economic organisation. Financial intermediation, in this case, is described as akin to the 'Schumpeterian' concept of innovation financing, because it transfers resources from the traditional sector by either collecting wealth and savings from those sectors in exchange for its deposits and other financial liabilities, or by facilitating credit creation and forced savings. The availability of such supply-leading funds therefore opens new prospects as possible alternatives, thereby enabling entrepreneurs to 'think big' (Patrick, 1966:176).

According to Patrick, a supply-leading financial system initially may not be able to operate profitably by lending to the nascent modern sectors, except in the extreme case where inherent profit opportunities are very high, and supply-leading is stimulating major entrepreneurial effort. The author therefore suggests several ways through which financial institutions can be made viable. First, they may be governed institutions, using government capital and perhaps receiving direct subsidies from the government. Second, private financial institutions may also be given indirect government subsidies. These indirect government subsidies can be provided in various ways. For instance, the commercial banks could be given rights to issue banknotes under favourable collateral conditions. Also, private institutions could be allowed to create deposit money with low reserve requirements. In addition, the central bank could endeavour to rediscount commercial banks loans at interest rates effectively below those on the loans. The third proposal is that modern financial institutions could initially lend a large proportion of their funds profitably to the traditional agricultural and commercial sectors, and could then gradually shift their loan portfolio to modern industries as these begin to emerge.

This approach closely resembles the demand-following phenomenon. However, as Patrick (1966) argues, whether such a financial institution is supply-leading will depend mainly on its attitude in searching out and encouraging new ventures of a modern nature.

While it cannot be said that supply-leading finance is a necessary condition or precondition for inaugurating self-sustained economic development, supply-leading finance does, however, present an opportunity to induce real growth by financial means. It is therefore likely to play a more significant role at the beginning of the growth process than later.

Patrick cautions that the supply-leading approach to development of a country's financial system has dangers that should not be underestimated. The author argues that, for this approach to be justified, the use of resources, especially entrepreneurial talents and managerial skills, as well as the costs of explicit or implicit subsidies in supply-leading development must produce sufficient benefits in the form of stimulating real economic development.

4.6.4. Selected Empirical Literature

The relationship between financial development and economic growth has recently received emphasis from numerous empirical works. Three groups exist in the literature. The first group argues that financial development leads to economic growth (supply-leading response). The second group maintains that it is economic growth that leads to the development of financial sector (demand-following response). The third group, however, contends that both financial development and economic growth Granger cause each other (bi-directional causal relationship). The empirical work, which is consistent with distinct supply-leading response include studies such as: Choe and Moosa (1999), Rajan and Zingale (1998), De Gregoria and Guidotti (1995), King and Levine (1993), Crichton and De Silva (1989), and Jung (1986), among others.

Choe and Moosa, for example, while examining the relationship between the development of financial systems and economic growth in Korea conclude that financial development in general leads to economic growth, and that financial intermediaries are more important than capital markets in this relationship (Choe and Moosa, 1999).

Rajan and Zingales investigate whether financial development facilitates economic growth by scrutinising the rationale that financial development reduces the costs of external finance to firms. The result of their study suggests that financial development has a substantial supportive influence on the rate of economic growth. Specifically, the study finds that industrial sectors that are relatively more in need of external finance develop disproportionately faster in countries with more developed financial markets (Rajan and Zingales, 1998).

Likewise, Gregorio and Guidotti, while examining the empirical relationship between financial development and economic growth, conclude that, by and large, financial development leads to improved growth. The authors, however, reiterate that the effects vary across countries and over time (Gregorio and Guidotti, 1995).

King and Levine use an endogenous growth model to examine how financial systems affect economic growth. According to the findings of this study, better financial systems improve the possibility of successful innovation, and thereby accelerate economic growth. Similarly, financial sector distortions reduce the rate of economic growth by reducing the rate of innovation. The study therefore concludes that financial systems are important for productivity, growth, and economic development (King and Levine 1993). Crichton and De Silva, while examining the progress of financial intermediation resulting from economic growth in Trinidad and Tobago, find that there is a definite positive correlation between economic growth and financial development, at least between 1973-1982. However, the study concludes that “while changes in the real sector

clearly impacted on the financial system, it is not clear to what extent financial intermediaries may have in turn aided the growth process through their ability to allocate savings efficiently to the most productive sectors of the economy” (Crichton and De Silva, 1989).

Adewunmi conducts a study to determine how efficiently the Nigerian commercial banks operate their loan functions and how this contributes towards general economic development. While investigating the relationship between the monetary and the real sector, the author finds a strong relationship between the monetary and the real sectors of the Nigerian economy, which also implies that money matters in Nigeria (Adewunmi, 1981). Other empirical studies, which conclude that financial development provides a significant contribution to growth, include Levine (1997), Levine et al (2000) and Temple (1999).

Despite the overwhelming arguments in favour of supply-leading a number of studies such as Akinboade (1998), Wood (1993), Jung (1986), Hyuha (1982, 1984) among others, have so far revealed that financial development and economic growth can Granger cause one another.

Akinboade (1998), for example, while examining the direction of causality between financial development and related growth in Botswana during the period 1972-1995, finds evidence of a bi-directional causality between financial development and per capita income. The author concludes that economic growth and financial development in Botswana appear to complement each other.

Wood (1993) examines the causal relationship between financial development and economic growth in Barbados during the 1946-1990 period. Using Hsiao’s (1979) test procedure, the author finds a bi-directional causal relationship between financial

development and economic growth. However, Wood finds no support for Patrick's hypothesis.

Jung (1986) investigates the international evidence on the causal relationship between financial development and economic growth using annual data from 56 countries. Using both simple and unidirectional concepts of causality, the author finds evidence of the supply-leading pattern to be more frequent in less developed countries (LDCs) than demand-following pattern. According to the results of this study, LDCs are characterised by the causal direction running from financial development to economic growth, and developed countries by the reverse causal direction, regardless of which causality concept is employed.

Hyuha (1982) concludes that financial intermediaries in developing countries enhance economic growth mainly through their role in the saving-investment process. They transfer resources from the traditional sectors of the economy to the modern sectors. Based on Uganda's experience, Hyuha (1982, 1984) finds financial liberalisation in Uganda to be both supply-leading and demand-following, therefore exhibiting a bi-directional causality pattern.

Kar and Pentecost (2000) examine the causal relationship between financial development and economic growth in Turkey. The authors use five alternative proxies for financial development in order to determine the impact of different aspects of financial development in Turkey. The Granger causality test is then carried out in the context of cointegration and vector error-correction mechanism. The empirical results of the study show that the direction of causality between financial development and economic growth is sensitive to the choice of measurement of financial development in Turkey. Although this study finds that the strength of the causality between financial development and economic growth is much weaker than that between economic growth and financial development, the authors conclude that "... it would be inconsistent with the results

obtained to argue that for all intents and purposes in Turkey, economic growth leads financial development” (Kar and Pentecost, 2000:9).

4.7. The Effect of Financial Liberalisation during Stabilisation Process -A Post McKinnon (1973) and Shaw (1973) Hypotheses

The extensions of the McKinnon (1973) and Shaw (1973) hypotheses have recently concentrated on the effect of liberalisation during stabilisation process. The concern here is that most developing countries engaging in programmes of liberalisation have at the same time been trying to reduce inflation and eliminate balance of payments deficits.

Kapur (1976) is one of the first models where the effect of simultaneous liberalisation and stabilisation is examined in detail. Kapur notes that stabilisation programmes normally involve a decline in real output when prices are sticky and there are adaptive expectations. This occurs because the reduction in the rate of growth of the nominal money supply by the authorities leads to a fall in the real money supply and hence to a fall in the supply of bank credit. Reduced bank credit causes a decline in the amount of working capital available for firms and hence to a decline in output. It is, however, worth noting that the decline in output in Kapur’s model comes through a supply-side effect (and the link between credit and output), and not through a demand-side effect as is more usual in a sticky prices model (Gibson and Tsakalotos, 1994:589). However, if instead of deflating by reducing the rate of growth of money supply, the authorities decide to increase the deposit interest rate, the excess supply of money, which is the cause of inflation in Kapur’s model, will be eliminated by the induced rise in the demand for broad money⁸. Inflation is, therefore, brought under control, as before, but in addition, the increased flow of deposits in this case allows banks to make more credit available to firms and hence increase output. However, it is important that the deposit rate does not rise too far so that the loan rates (which rises with deposit rates) increase above the real rate of profit on working capital. If deposit rates are raised too far, the increased credit

supply will not be demanded (Kapur, 1976:792). The advantage of the latter program of raising interest rates instead of reducing money supply when controlling inflation is that the squeeze on output which usually accompanies the conventional stabilisation program is avoided.

Jao (1985), however, notes a problem with this approach to stabilisation. The author argues that, if deposit rates rise and banks are engaging in positive maturity transformation (i.e. borrowing short-term and lending long-term), then banks' profits will be squeezed as the loan rate on existing loans cannot be raised. This problem will not arise, of course, when banks lend on a variable interest rate basis (i.e. a situation where interest rates on long-term loans vary throughout the course of the loans as market interest rates vary) (Jao, 1985:201).

Another factor, which is crucial for the success of the liberalisation and stabilisation process, is exchange rate policy. This is so because the exchange rate affects capital flows through its impact on the expected rate of depreciation. Usually liberalisation is expected to attract capital inflows. This is because liberalisation entails an increase in the domestic deposit rate above world levels. However, since stabilisation programmes often involve depreciation in the exchange rate, the resulting interest rate differential may not be offset by an expected depreciation of the domestic currency. In addition, capital inflows are likely because, since the marginal productivity of capital is usually higher in recently liberalised developing countries, domestic firms will be able to borrow from abroad⁸. Such inflows could, however, undermine the ability of the authorities to control the monetary base and, therefore, could put the stabilisation programme in jeopardy.

Mathieson (1979) and Kapur (1983) have analysed the effect of money to an open economy on the optimal stabilisation programme. Kapur (1983) is concerned with

⁸ This will happen because the deposit rate, which is the money's rate of return, has risen.

⁹ See also Bacchetta, 1989.

designing an exchange rate policy that will prevent capital inflows, so as not to undermine the attempt at reducing inflation. Mathieson (1979), by contrast, argues that if capital flows are anticipated by the authorities, then they could be beneficial. According to Kapur (1983), the preferred policy in an open economy context is for the authorities to increase both the deposit rate and the rate of monetary growth initially. However, this policy should be implemented only when inflation is not so high as to warrant a large deflation program. However, if inflation is initially too high, then monetary growth should be kept low at first even though this will be at the expense of zero growth (Kapur, 1983:59). Such a policy will reinforce the increase in growth that results from the increased deposit rate without necessarily sacrificing the inflationary targets. This is because the inflationary impact of the rise in monetary growth in this case will be neutralised by the rise in deposit rate.

On the side of the exchange rate, Kapur argues that, since the exchange rate affects both the price of imported inputs and capital flows through the effect of the expected rate of depreciation, the exchange rate policy prescription is very tricky. A policy of high rate of depreciation, for instance, which has a beneficial impact on the current account deficit, has two opposing effects on inflation. On the one hand, it increases import prices and hence inflation. On the other hand, a high rate of depreciation means that the deposit rate will have to be higher to prevent capital out-flows, and hence inflation will be lower. In this case, the actual exchange rate policy chosen will largely depend on where the initial inflation is relative to its target level. What is crucial is that exchange rate policy must be set alongside deposit interest rates in order to avoid potentially damaging capital flows.

By contrast, Mathieson's (1979) preferred strategy differs substantially from that of Kapur (1983). Mathieson argues that the optimal policy is to over-depreciate the exchange rate, reduce the rate of monetary growth and increase loan and deposit rates. The increased deposit and hence loan rates removes credit rationing and hence allows output to rise. However, it is again important that the increase in interest rates is

coordinated alongside the exchange rate policy. In Mathieson's model, deposit and loan rates are forced to move in the same direction because the author imposes a condition that banks should earn normal profit in order to maintain financial stability throughout the liberalisation/stabilisation process. The policies of over-depreciation that help improve the current account will, however, generate expectations of an appreciation. The deposit rate must not, therefore, be increased so as to generate large capital inflows. Instead, the deposit rate should be increased moderately in order to attract a flow of deposits from domestic sources as well as a moderate capital inflow. Thus, according to Mathieson's model, moderate capital inflows are used to increase the supply of real credit and hence reduce credit rationing. This implies that growth can remain above its steady-state level¹⁰, and this higher output can set the stage for a fall in inflation by eliminating the excess demand for goods¹¹.

4.8. Concluding Remarks

In this chapter, an attempt has been made to elaborate on the theoretical and empirical linkages between financial liberalisation and other macroeconomic variables. In particular, in this chapter attempts have been made to forge theoretical and empirical links between financial liberalisation and savings, financial deepening, investment efficiency and economic growth. Indeed, the impact of financial liberalisation on economic growth cannot be realised unless proper account is taken of its role in the promotion of savings, financial deepening, and investment efficiency.

Throughout this chapter, empirical literature has been reviewed alongside the theoretical constructs that inform the practice of financial liberalisation. The point of departure in this case was McKinnon's complementarity hypothesis, which gauges the demand for money and physical capital in the finance motive for economic development. The

¹⁰ This because interest rates have not risen by as much as they would have without the policy of over-depreciation.

¹¹ For a detailed survey on this subject, please see Fry, 1982; Gibson and Tsakalatos, 1994.

interrelationship between financial liberalisation and other macroeconomic variables such as savings, investment efficiency, and economic growth were intuitively discussed in the subsequent sections. In addition, the controversy between the supply-leading phenomenon and demand-following phenomenon has also been reviewed. Based on the empirical studies reviewed in this chapter, the following conclusions can be drawn.

- (i) There is overwhelming support for the McKinnon's complementarity hypothesis. Although studies such as Fry (1978), Gupta (1984) and Mwega, et.al. (1990) find no wide support for McKinnon's complementarity hypothesis, studies such as Ajowole (1989), Thornton (1990), Khan and Hasan (1998), and Nyangetera (1997) find a strong support for McKinnon's complementarity hypothesis.
- (ii) The relationship between interest rates and savings is ambiguous. On the one hand, studies such as Fry (1977), Fry (1978), Fry and Manson (1982), Fry (1988), Yusuf and Peters (1984), Leite and Makonnen (1986) find strong support for the positive relationship between interest rate and savings. On the other hand, studies such as Williamson (1968), Gupta (1984, 1987), Giovannini (1983), and Arrieta (1988) find very little or no support for the positive interest elasticity of savings.
- (iii) There is a widespread support for the proposition that financial liberalisation proxied by flexible interest rates increase the quality of investment. Fry (1980; 1986), for example, finds a positive relationship between domestic credit and investment. Theoretical studies such as Greenwood and Jovanovic (1990), Bencivenga and Smith (1991), Levine (1992), and Saint-Paul (1992) all present models in which the gains from increased financial development stems from increased efficiency in the allocation of investment rather than from larger volume of investment.

- (iv) The impact of financial liberalisation on financial deepening varies between countries. A positive relationship between financial liberalisation and financial deepening is reported in Mosley (1999) for the case of Bangladesh, Nepal and Laos, and, in Ikhide (1992), for the case of 12 out of 17 African countries.
- (v) The direction of causality between financial development, which results from financial liberalisation, and economic growth, varies across countries. Studies such as Choe and Moosa (1999) (in the case of Korea), Crichton and De Silva (1989) (in the case of Trinidad and Tobago), and Adewumni (1981) (in the case of Nigeria) find a strong support for the supply-leading response between financial development and economic growth, while studies such as Akinboade (1998) (in the case of Botswana), Wood (1993) (in the case of Barbados), and Hyuha (1982, 1984) (in the case of Uganda) find strong support for a bi-directional causality.

CHAPTER 5

FINANCIAL LIBERALISATION IN KENYA

5. Introduction

This chapter is the first of three chapters that focus on Kenya, South Africa and Tanzania's experiences with financial liberalisation. These countries' experiences with financial liberalisation serve as a precursor to the empirical investigation presented in chapters eight and nine.

The current chapter is divided into seven sections. Section one is an overview of Kenya's financial liberalisation. Section two is a discussion of the origin of interest rate liberalisation in Kenya, while in section three the trends of the interest rates in Kenya before and after financial liberalisation are presented. This section also highlights some of the factors that may have contributed towards the recent high level of interest rates in Kenya. Section four comprises a review of the development of the financial sector in Kenya as well as the associated reforms that have been undertaken to date to strengthen the sector. Some of the reforms discussed in this section include central bank reforms, banking and non-banking financial institutions reforms, financial markets reforms and foreign exchange reforms. In section five, some of the challenges facing Kenya after financial liberalisation are presented. These challenges include the fall of non-bank financial institutions, the 'banking distress' of the 1990s, the spread between lending and deposit rates, and savings and investment trends. In addition, trends of financial depth and economic growth before and after financial liberalisation are analysed. Section six presents a chronology of financial reforms that have been implemented since the 1980s, while in section seven some concluding remarks are presented.

5.1. The Origin of Financial Liberalisation in Kenya

The financial system in Kenya has undergone three major phases of restructuring and reform since the country attained independence on 12 December 1963. In all the phases, the important role played by financial institutions in promoting economic growth and development was emphasised. Kenya initially inherited a financial system that was under the control of the East African Currency Board (EACB). The EACB, however, lacked monetary and financial independence. The government later found it necessary to establish national monetary controls that aimed at the efficient operation of the monetary system, and this marked the beginning of the second phase.

In May 1966, the Central Bank of Kenya (CBK) was established by an act of parliament. There were then only ten commercial banks, which were mainly foreign-owned. The main goal of this act was to ensure the growth and stability of the financial sector in order to stimulate growth in other sectors of the economy (Ngugi and Kabubo, 1998). This financial system expanded and became more diversified mainly in the 1970s and 1980s. However, throughout this phase the financial sector in Kenya, just like in other developing countries was characterised by government controls on the allocation and pricing of financial resources. Differences in regulations governing banking and non-bank financial institutions created loopholes in the regulatory and supervisory mechanisms. This led to an excessive proliferation of non-bank financial institutions. CBK lacked autonomy and its ability to exercise its surveillance role of enforcing banking regulations was impaired. Differentiated interest rate structures between banks and non-bank financial institutions produced a fragmented credit market.

It is against this background that the government, on advice of the World Bank and IMF, implemented financial liberalisation policies in the 1980s and 1990s. This period marked the beginning of the third phase - the phase on which the current study is focused. In this phase broad financial liberalisation and reforms were instituted, with the aim of creating

an environment conducive to the development of a market-based financial system. The focus of the reforms was on relaxing controls on interest rates, enforcing the use of indirect monetary policy instruments, strengthening the framework for the supervision of financial institutions, and promoting the development of capital markets, among others. It was envisaged that this phase would pave the way for the participation of both domestic and foreign private institutions in the financial system. It was also expected that these policies would promote competition and efficiency in the mobilisation and allocation of financial resources in order to stimulate both financial and economic development.

During this third phase, several changes in interest rate reforms were undertaken, culminating in a virtual de-control in July 1991. The need for these reforms originated in the belief that government interventions such as ceilings on nominal interest rates, direct control over credit allocation and high reserve requirements limit economic growth in developing countries. Changes in the legal and regulatory framework were also undertaken. These included amendments to the Central Bank of Kenya Act, the Banking Act, the Building Societies Act and the Capital Markets Authority Act, among others. These reforms, coupled with the amendment of the Central Bank of Kenya Act strengthened the supervisory and regulatory capacity of the Central Bank.

The financial sector in Kenya is currently among the most developed systems in sub-Saharan Africa (Popiel, 1994). The sector comprises a number of commercial banks and non-bank financial institutions. By 1993, the country had 32 commercial banks and 55 non-bank financial institutions¹, 32 building societies, 10 development finance institutions, and a large Post Office Savings Bank network, among others. In November 1998, the financial system comprised 55 commercial banks, 16 non-bank financial institutions (NBFIs), 4 building societies and 2 mortgage finance companies (MFCs). The number of operational foreign exchange bureaux increased to 44 from 37 at the end of

¹ Of which 25 were subsidiaries of commercial banks.

November 1997. However, five commercial banks were under statutory management of the Central Bank (Monthly Economic Review, Central Bank of Kenya, December 1998).

In June 2000, the number of commercial banks declined to 51 from 52 in June 1999 following the merger of four banks into two banks, and one new bank becoming operational. The number of non-bank financial institutions (NBFIs) further declined to 10 from 13 in June 1999, as a result of two of them merging with their parent banks and one converting into a commercial bank (Central Bank of Kenya, Annual Report, 2000).

In 1998 the number of locally owned banks with branches and subsidiaries outside the country reached four. Seven branches were located as follows: one in Malawi, three in Tanzania; two in Uganda; and one in Pakistan. The branch expansion for banks also became more pronounced in the main urban areas, especially in Nairobi, Mombasa, and Kisumu (Bank Supervision Annual Report, 1998).

5.2 The Origin of Interest Rate Liberalisation in Kenya.

At independence in 1963, Kenya experienced rapid economic growth with a relative degree of internal and external balance. However, following the two oil price shock waves in the 1970s, the country later suffered macro-economic imbalances and sluggish economic growth that forced it to adopt structural adjustment programmes (SAP) in the 1980s. Although the economy in general attained some degree of stability during this period, the condition later deteriorated, especially in 1985/86. This prompted a reassessment of the implementation of these SAPs, thereby shifting the emphasis from a broad-based macroeconomic approach to a sectoral implementation approach.

During the 1960s and the 1970s, interest rate policy in Kenya remained fairly inactive. The government administered interest rates through a regime of fixing minimum savings interest rates for all deposit-receiving institutions and minimum lending rates for commercial banks, non-bank financial institutions (NBFIs) and building societies. The first interest rate review was undertaken in June 1974 when the minimum savings and lending rates were raised by two and one percentage points respectively (Kariuki, 1995:5-7). The official policy in Kenya at that time was to follow a low interest policy in order to encourage investment and protect small borrowers. This, however, rendered most interest rates negative in real terms in the 1970s.

In April 1981, the government switched to setting maximum rather than minimum lending rates. From 1981, a gradual liberalisation strategy was pursued and nominal interest rates were reviewed regularly. Specifically, major reviews were in October 1982, June 1984, January 1988, April and November 1989, and April 1990. In 1983, a positive real interest rate was recorded, and in July 1991, interest rates were fully liberalised.

5.3 Interest Rates Behaviour Before and After Liberalisation

Kenyan interest rates trends can, for convenience, be divided into two categories – namely, pre-reform trends and post-reform trends. During the pre-reform period nominal interest rates were low and in most cases real interest rates were negative. However, following the liberalisation of interest rates in 1991, nominal rates increased significantly. Since the liberalisation of interest rates, a vast majority of interest rates maintained a double digit-level in nominal terms. A detailed review of pre-reform and post-reform interest rates behaviour will be presented in sections 5.3.1 and 5.3.3 respectively.

5.3.1 Interest Rates Behaviour Prior to the 1991 Interest Rate Liberalisation

During the period 1969-1990, nominal interest rates in Kenya were administratively set below the market-clearing levels. As a result, in most instances real interest rates remained negative. Table 5.1 shows the trends of selected interest rates in Kenya during the period 1969-1990.

Table 5.1: The Trends of Selected Interest Rates in Kenya Between 1969-1990

Year	Nominal Discount Rate	Real Discount Rate	Nominal Treasury Bill rate	Real Treasury Bill Rate	Nominal Deposit Rate	Real Deposit Rate	Nominal Lending Rate	Real Lending rate
1969	6.50	-	3.95	-	3.50	-	-	-
1970	6.50	-	2.00	-	3.50	-	-	-
1971	6.50	3.64	1.42	-1.44	3.50	0.64	9.00	6.14
1972	6.50	3.72	3.45	0.67	3.50	0.72	9.00	6.22
1973	6.50	1.09	1.92	-3.49	3.50	-1.91	9.00	3.59
1974	6.50	-1.19	4.63	-3.06	4.32	-3.37	9.50	1.81
1975	7.00	-12.05	6.08	-12.97	5.13	-13.92	10.00	-9.05
1976	7.00	-11.00	5.54	-12.46	5.13	-12.87	10.00	-8.00
1977	6.50	-5.36	2.13	-9.73	5.13	-6.73	10.00	-1.86
1978	7.50	-7.65	4.29	-10.86	5.13	-10.02	10.00	-5.15
1979	7.50	-9.61	6.01	-11.10	5.13	-11.98	10.00	-7.11
1980	8.00	0.13	5.26	-2.61	5.75	-2.12	10.58	2.71
1981	12.50	-1.04	7.61	-5.93	8.85	-4.69	12.42	-1.12
1982	15.00	3.07	12.58	0.65	12.20	0.27	14.50	2.57
1983	15.00	-5.49	14.15	-6.34	13.27	-7.22	15.83	-4.66
1984	12.50	0.94	13.24	1.68	11.77	0.21	14.42	2.86
1985	12.50	2.13	13.90	3.53	11.25	0.88	14.00	3.63
1986	12.50	-0.21	13.23	0.52	11.25	-1.46	14.00	1.29
1987	12.50	9.56	12.86	9.92	10.31	7.37	14.00	11.06
1988	16.02	7.45	13.48	4.91	10.33	1.76	15.00	6.43
1989	16.50	4.22	13.86	1.58	12.00	-0.28	17.25	4.97
1990	19.43	5.76	14.78	1.11	13.67	0.00	18.75	5.08

Source: IFS Yearbook (various issues); Author's own computation from IFS Yearbooks.

– Data Not Available.

As can be seen in Table 5.1, interest rates during the period 1969-1990 were largely controlled. For example, the nominal discount rate remained constant at 6.5% per annum from 1969 to 1975. It was then increased by 50 basis points to 7.00% in 1975. However, the 7.00% rate only lasted for two years. In 1977, the rate was adjusted downward to

6.50%, a level that only lasted for one year. Between 1978 and 1979, the rate was maintained at 7.50% and, in 1980, it was further increased to 8.00%. Between 1981 and 1990, the nominal discount rate remained at double-digit levels, with the highest rate of 19.43% being reported in 1990. Although the nominal discount rate showed a more or less consistent double-digit trend, the real discount rate remained low and even negative in some instances. The real discount rate was positive between 1971 and 1973 and thereafter remained negative for six years (i.e. between 1974 and 1979). The highest real discount rate recorded was 9.56% in 1987, followed by 7.45% in 1988, and 5.76% in 1990.

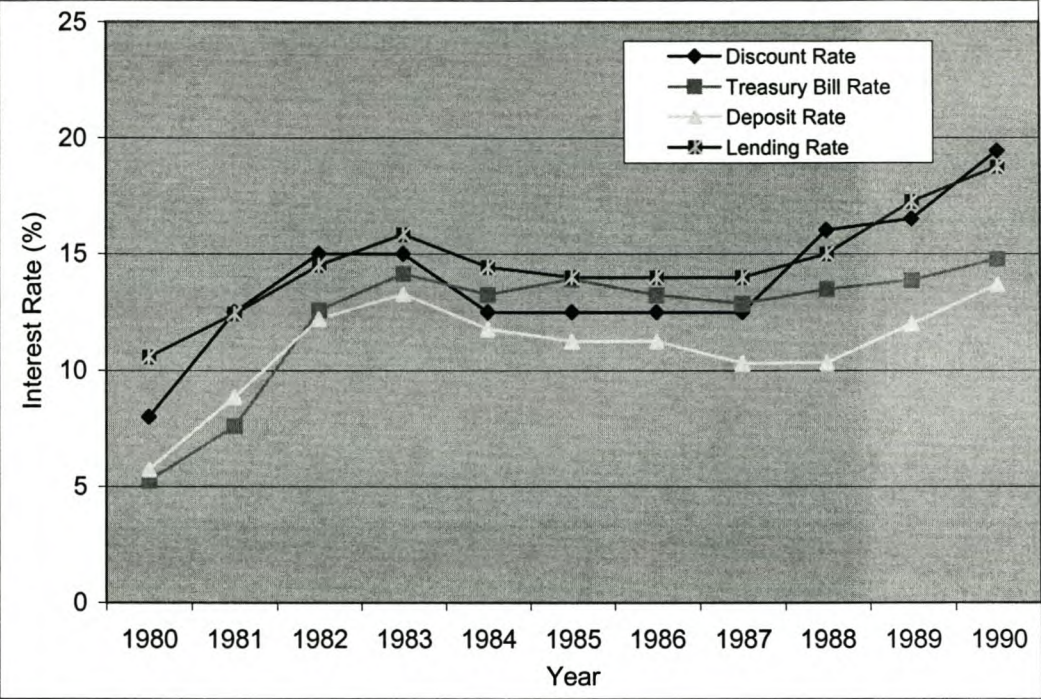
Just like in the case of the discount rate the nominal Treasury bill rate trend was maintained at a single digit level between 1969 and 1981. The rate thereafter maintained a double-digit level throughout 1982-1990 period, with the highest rate (14.15%) being recorded in 1983. However, the real Treasury bill rate remained negative, between 1973 and 1981, before increasing to 0.65% in 1982. Although the rate was negative in the following year (1983), it later remained positive between 1984 and 1990.

As in the case of the discount rate and the Treasury bill rate, the nominal deposit rate in Kenya was administratively set during the period 1969-1990. During the period 1969-1973, the nominal deposit rate was set at 3.50%. The policy of the Kenyan government at this time was to pursue low deposits rates. However, in 1974, the rate was adjusted upward by 82 basic points to 4.32%. It was the first time that the deposit rate was adjusted upwards since independence in 1963. Between 1975 and 1979, the nominal deposit rate was maintained at 5.13%. From 1980, the nominal deposit rate was reviewed regularly following the implementation of the structural adjustment program. The nominal deposit rate was increased from 5.75% in 1980 to 13.27% in 1983. In 1984, the rate was adjusted downward to 11.77% and thereafter maintained at 11.25% in 1985 and 1986. Between 1987 and 1990, the deposit rate was increased gradually, with the highest rate 13.67% being recorded in 1990. While the nominal deposit rate trend in Kenya was

largely influenced by the prevailing Kenya's interest rate policies, the real deposit rate was largely influenced by the rate of inflation. The real deposit rate, for example, showed a positive and increasing trend between 1971 and 1972, but later declined to -1.92% in 1973. Between 1973 and 1981, the rate remained negative, with the lowest rate (-13.92%) being recorded in 1975. This low and negative real deposit rate was due to the financial repression policies and the high inflation rate, which prevailed during this period. Although the real deposit rate was positive in 1982, in 1983, the rate declined by more than 6.9 percentage points. The rate however remained positive between 1984 and 1988, with the exception of 1986 when a rate of -1.46% was recorded.

Like all other interest rates, the lending rate was largely administered during the period 1969-1990. The lending rate was artificially kept low, especially in the 1960s and 1970s, in order to protect small borrowers. The nominal lending rate remained fixed administratively at 9.00% between 1971 and 1973 before being adjusted upwards to 9.50% in 1974 and 10% in 1975 where it remained for 5 years. As from 1981, the Kenyan government switched to setting a maximum rather than a minimum lending rate. As a result, the nominal lending rate was adjusted from 12.42% in 1981 to 15.83% in 1983 before being lowered again to 14.42% in 1984. The rate, however, remained fixed at 14% between 1985 and 1987. Between 1988 and 1990, the nominal lending rate was reviewed regularly. The rate was increased from 15% in 1988 to 18.75% in 1990. While the nominal lending rate was mainly dependent on the government's policy stance, the real lending rate was to a large extent affected by the trend of the inflation rate that prevailed during the period under review. The real lending rate, for example, remained positive between 1971 and 1974 with the highest rate (6.22%) being recorded in 1971. However, between 1975 and 1979, the rate remained negative with the lowest rate (-9.05%) being recorded in 1979. Although the rate was positive in 1982, it turned negative again in 1983. Between 1984 and 1990, the real lending rate mainly oscillated between 1.29% and 11.06% , with the highest rate being recorded in 1987. Figure 5.1 shows the general trends of some selected interest rates in Kenya during 1980 to 1990.

Figure 5.1: Trends of Interest Rates During the Period 1980-1990.



Source: Compiled from IFS Yearbook (2000).

5.3.2 Interest Rates behaviour After the 1991 Interest Rate Liberalisation

Although financial reforms in Kenya started as early as the 1980s, it was only in July 1991 that interest rates were fully liberalised. Since then nominal interest rates have been following a steep ascent. Table 5.2 shows the trends of selected interest rates in Kenya during the period 1991-2001.

Table 5.2: Trends of Selected Interest Rates in Kenya (1991-2001)

Year	Nominal Discount Rate	Real Discount Rate	Nominal Treasury Bill rate	Real Treasury Bill Rate	Nominal Deposit Rate	Real Deposit Rate	Nominal Lending Rate	Real Lending rate
1991	20.27	2.74	16.59	-0.94	-	-	19.00	1.47
1992	20.46	0.28	16.53	-3.65	-	-	21.07	0.89
1993	45.50	18.01	49.80	22.31	-	-	29.99	2.50
1994	21.50	-24.30	23.32	-22.48	-	-	36.24	-9.56
1995	24.50	-4.43	18.29	-10.64	13.60	-15.33	28.80	-0.13
1996	26.88	25.36	22.25	20.73	17.59	16.07	33.79	32.27
1997	32.27	23.37	22.87	13.97	16.72	7.82	30.25	21.35
1998	17.07	5.78	22.83	11.54	18.40	7.11	29.49	18.20
1999	26.46	19.78	13.87	7.19	9.55	2.87	22.38	15.70
2000	19.47	15.99	12.05	8.57	8.10	4.62	22.34	18.86
2001	16.81	10.61	12.59	6.39	6.64	0.44	19.67	13.47

Source: IFS Yearbook (various issues); Author's own computation from IFS Yearbooks; (-) Data Not Available.

As shown in Table 5.2, nominal interest rates remained in double-digits between 1991-2001, except for the deposit rate. For example, the nominal discount rate increased from 20.27% in 1991 to 45.50% in 1993 before declining to 21.50% in 1994. The rate later increased from 21.50% in 1994 to 32.27% in 1997, but declined to 17.07% in 1998. Between 1999-2001, the nominal discount rate showed a consistent declining trend. Although the nominal discount rate maintained a double-digit level between 1990-2001, the real rate remained low and even negative in some instances due to high inflationary pressure during the 1990s. The real discount rate was positive between 1991 and 1993 and thereafter remained negative between 1994 and 1995. However, since 1996 the real discount rate has been consistently positive, with the highest rate recorded in 1996.

Like in the case of discount rate, the nominal Treasury bill rate trend was maintained at a double-digit level between 1991 and 2001. The highest Treasury bill rate recorded during this period was 49.80% in 1993, followed by 23.32% in 1994, 22.87% in 1997, 22.83% in 1998, and 18.29% in 1995. The real Treasury bill rate on the other hand became erratic after interest rate liberalisation. For example, the real rate remained negative between

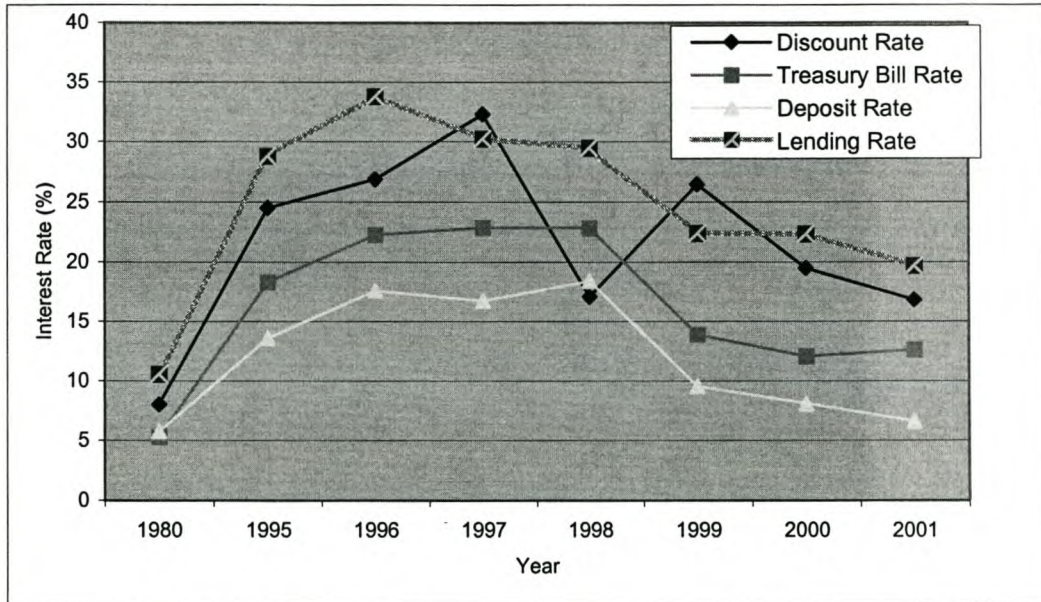
1991 and 1992, and between 1994 and 1995. Although the rate increased significantly in 1996, the rate later fell in 1997. Since then, the real Treasury rate has been declining.

Like in the case of discount and Treasury bill rates, the nominal deposit rate showed a more or less upward trend immediately after interest rate liberalisation in 1991. The nominal deposit rate increased steadily between 1995 and 1996, but later declined in 1997. In 1998, the rate increased by 1.68 percentage points, the highest level in history, but later declined in 1999. Although Kenya's deposit rate remained generally high after interest rate liberalisation in 1991, the trend later reversed between 1998 and 2001. During this period, the deposit rate systematically declined from 18.40% in 1998 to 6.64% in 2001 (the lowest deposit rate in two decades). While the nominal deposit rate was largely influenced by the market forces during the period 1991-2001, the real deposit rate, like other real interest rates was largely influenced by the rate of inflation. For example, the real deposit rate turned negative in 1995 and showed a systematically declining trend between 1996 and 1999. The rate later increased in 2000, but declined again in 2001.

Like most interest rates, the nominal lending rate showed a sustained increasing trend following interest rate liberalisation in 1991. The highest nominal rate (36.24%) during this period was recorded in 1994. During 1996 and 2001, Kenya witnessed a systematic decline in nominal lending rate. The rate declined persistently from 33.79% in 1996 to 19.69% in 2001. While the nominal lending rate maintained a double-digit level immediately after interest rate liberalisation, the real lending rate remained low and at times turned negative during the first four years after liberalisation. However, the real rate later increased to its highest in Kenya's financial history in 1996. Following interest rate liberalisation in 1991, the real lending rate declined from about 1.47% in 1991 to a negative level in 1993 and 1994. However, in 1996, the rate dramatically increased to about 32.27%. Since then, the rate has maintained a double-digit level. Figure 5.2 shows

the general trends of some selected interest rates in Kenya during 1995 to 2001 as compared to 1980.

Figure 5.2: Trends of Interest Rates During the Period 1989-2001 as compared to 1980



Source: Compiled from IFS Yearbook (2002).

5.3.3 Why Interest Rates Remain High in Kenya

Although interest rates were low and virtually negative during the era of financial repression, the high and increasing interest rates in Kenya, especially during the late 1990s is troubling. Some of the factors that explain the persistent high interest rates in Kenya include

- i) expectations of higher inflation;
- ii) monetary and fiscal policies;
- iii) excess demand for loans;
- iv) inadequate competition;
- v) non-performing loans; and

- vi) exchange rate risk².

Each of these factors bears some further discussion.

Expectations of Higher Inflation: Experience has proven that borrowers and lenders alike tend to settle for higher than desired interest rates whenever the expected inflation rate exceeds actual inflation. Kenya, like other SSA countries, has from time to time been affected by high inflation expectation. For example, the overall increases in month-to-month inflation in Kenya, especially in the 1990s, kept alive fears of high inflation. These fears lead to higher interest rates. Moreover, a high inflation rate resulting from high inflation expectation, tends to deflate real interest rates, and thereby discouraging financial savings. A decrease in financial savings, in turn, reduces the amount of available loanable funds for investment, which then creates an upward spiral on nominal lending rates.

Monetary and Fiscal Policies: Interest rates in Kenya have been influenced by the country's monetary and fiscal policies. For example, interest rates rose to unprecedented levels from mid-1993, following aggressive sales of Treasury bills at high interest rates to withdraw excess liquidity from the banking system. As in other countries, the interest rate on Treasury bills is used by the market in Kenya as the basis for setting other rates. Hence, an increase in the Treasury bill rate leads to an increase in general interest rates. Other monetary and fiscal policies that could have contributed toward high interest rates in Kenya include a high liquidity ratio and the sterilisation of foreign exchange. The liquidity had been injected into the money market in 1991 and 1992, largely through expensive monetary policy and weak enforcement of banking laws. During the late 1990s, CBK concentrated mainly on the stabilization of the exchange rate, which was threatened by large foreign capital inflows. CBK therefore had to absorb surplus foreign

² See CBK Annual Report (1997; 1998).

exchange from the interbank market and sterilize the counterpart created shillings by selling Treasury bills.

Excess Demand for Loans: The supply and demand conditions for loans normally determine the interest on lending. Under market conditions, the interest on loans increases when demand for funds exceeds supply, and vice versa. The decline in lending rates can only be sustained by reduced demand for funds. In 1997, for example, credit to the private and other public sectors in Kenya rose only by 15.7% compared to 24.0% in the previous year. However, this slowdown was partially offset by an increase of 33.7% in commercial bank and NBFIs lending to government, compared with a decline of 18.5% in 1996. The additional lending to the government was in Treasury bills sold at interest rates higher than those payable on three-month bank deposits (CBK Annual Report 1997; 1998).

Inadequate Competition: As at June 1997, the banking system was dominated by seven banks, which held 63.6% of total deposits and 63.5% of total assets. These banks dominated the interest rate setting, with smaller banks adopting the established pattern of interest rates. Interest rates among large banks were high with fairly large and stable spreads between lending and deposit rates during the year (CBK Annual Report 1997, 1998).

Non-performing Loans: The share of non-performing loans in the total loan portfolio in Kenya remained large during the 1990s. In 1997, for example, the share of non-performing loans as a percentage of the total loan portfolio was 18%, with only 8.3% being provided for.

Exchange Rate Risk: The fear of a rapid weakening of the shilling also discourages borrowing from abroad. Heavy losses may be incurred when a company that borrowed abroad has to service the debt at a more depreciated shilling exchange rate than at the

time of borrowing. This forces all potential investors to resort to domestic borrowing, thereby bidding up the domestic interest rates (CBK Annual Report 1998).

5.4. Financial Sector Reforms and Development in Kenya

Kenya has a well developed financial sector consisting of the Central Bank, commercial banks, non-bank financial institutions, building societies, insurance companies, development finance institutions, among others. Kenya's capital market is also developing rapidly. The Nairobi Stock Exchange is one of the oldest exchanges in sub-Saharan Africa. This section attempts to review the development of financial sector in Kenya as well as the reforms, which have been undertaken to enhance the sector. Some of the reforms discussed in this section include those of CBK, banking and non-banking institutions, financial markets, and the foreign exchange market.

5.4.1 Central Bank Reforms

Before discussing the central bank reforms, it is important to understand how the Central Bank of Kenya (CBK) is structured. CBK was established in 1966, following the collapse of the East African Currency Board (EACB) in the mid-1960s through an Act of Parliament (the Central Bank of Kenya Act of 1966). The Bank is governed by a board of directors that consists of seven members. These include the governor, who is also the chairperson, the deputy governor (the deputy chairman), the permanent secretary to the Treasury (a non-voting member), and five other non-executive directors. All members of the board are appointed by the president to hold office for a term of four years and are eligible for reappointment. The executive management team comprises the governor, the deputy governor, and nine heads of department who report to the governor.

In 1997, the Central Bank Act was amended in order to enhance the efficiency of operations of the financial system, thereby maximising the systems' impact on economic

growth. The amendments were timely as they followed extensive reforms undertaken in the operations and structures of banking institutions. In this amendment, the primary objectives of CBK were set as: i) formulating and implementing monetary policy that is focused on securing price level stability; and ii) fostering a stable market based financial system, among others. The secondary objectives were set as: i) formulating and implementing foreign exchange policy; ii) managing the official foreign exchange reserves; iii) licensing and supervising dealers in the money market; and iv) promoting efficient payments, clearing and settlement systems, among others.

Although the Central Bank of Kenya Act of 1966 gave CBK some limited autonomy, the amendment of the Central Bank Act in April 1997 now gives CBK greater monetary autonomy. Though required to support the general economic policy of the government, CBK has independence in exercising the powers conferred on it by the Central Bank of Kenya (Amendment) Act. However, the government and CBK have mutual consultations on important policy issues. CBK is, for example, required to advise the government on monetary and fiscal policy issues and other economic issues that may have important ramifications on the Bank's monetary policy.

CBK's functions have also changed since 1966. Currently, CBK aims at maintaining price stability and fostering liquidity, solvency, and proper functioning of a stable market-based financial system. Specifically, CBK attempts to control movements in the general price level by restricting the growth of the total money stock available in the economy to a predetermined growth target. CBK currently uses three major tools in order to achieve this goal. These include open market operations, discount window operations and the reserve requirement.

Open Market Operation: Through open market operations, CBK buys or sells Kenyan government Treasury bills both in the primary and secondary market in order to produce

the desired level of bank reserves. CBK injects money into the economy when it buys Treasury bills, and drains money when it sells them. Through this mechanism, the cost of loanable funds (interest rates) adjusts itself to the desired level. CBK may also use the discount window to restrict the growth of the money stock. As the lender of last resort it may provide secured short-term loans to commercial banks that are temporarily in need of funds, but only after they have exhausted their market sources of funds. CBK then sets the discount rate to reflect the monetary policy objectives. In 1996, repurchase agreements (Repos) were introduced. Repos are basically agreements made by CBK to buy back at short notice earmarked Treasury bills sold to a bank. This facilitates temporary withdrawal of liquidity from banks upon sale, but the situation normalizes when the Central Bank buys back Treasury bills or reverses the Repos. In July 1997, the use of two-way Repos between CBK and commercial banks was effected. CBK also uses tap sales of Treasury bills, alongside the primary auction, which allow unsuccessful investor in the primary market to invest in the bills at interest rates below those acceptable in the primary market auctions.

Reserve Requirements: CBK may use reserve requirements to regulate the growth rate of money stock. CBK is empowered by the Act to demand a certain proportion of commercial banks' deposits to be held as non-interest bearing reserves at CBK. An increase in reserve requirements would be regarded as an attempt to restrict bank credit. A reduction in the reserve ratio is viewed as an expansion of credit, as it increases the credit creation power of the banks.

In June 1993, for example, the cash ratio was 10% before being increased to 12% in October 1993, with balance above the minimum requirement to earn interest at 35% per annum. In November 1993, the cash ratio was raised from 12% to 14% with excess balances paying 35% interest per annum. In 1994, cash ratio was further raised to 20% and the interest payment on commercial bank deposits at the Bank was withdrawn. In September, the cash ratio was however lowered from 20% to 18%. In 1995, the NBFIs

were also subjected to the mandatory cash ratio requirement. The requirement was initially set at 1.8% of eligible deposits and raised progressively to 18% by December 1995. In May 1996, cash ratio requirement was relaxed to allow fluctuations of up to a minimum of 15% but an average of 18% for 14 days. In 1998, compliance with the cash ratio requirement was enhanced by raising the penalty for defaulters to 0.25% per day with daily penalty doubling to 0.5% for continuous defaulting exceeding 15 days. Institutions that default for 30 days within a 60 day period would be brought under Central Bank management.

5.4.2 Banking Sector Reforms and Development

Once again, before discussing banking sector reforms, it is pertinent to describe briefly the history of Kenyan banking and its regulation. The origin of commercial banking in Kenya is linked to the commercial connections that existed towards the end of the 19th century between India and East Africa. The National Bank of India was the first bank to open an office in Mombasa town in 1896 after the establishment of the British presence in the area. It was then followed by the Standard Bank of South Africa, in 1910, and the National Bank of South Africa, in 1916. The National Bank of South Africa, which was incorporated in South Africa, amalgamated with the Colonial Bank of the Anglo-Egyptian Bank to form Barclays Bank in 1926. Two of these three banks were branches of British banks established in London. These banks, like all other British banks at that time, followed the development of the trade in the colonies and concentrated on the financing of international trade. The National Bank of India later became the National Grindlays Bank while the Standard Bank of South Africa became the Standard Bank. These three banks dominated banking in Kenya for about 50 years. Thereafter a fresh influx of six more banks took place before independence in 1963. This latter influx was activated by a developing economy with excellent opportunities for further expansion. At this time, the three original banks had entrenched themselves securely in the economy. However, most of the new entrants remained small because the original banks expanded their penetration in the country leaving little room for newcomers.

Banks in Kenya were initially regulated by the Banking Ordinance enacted in 1910, which was later repealed by the Banking Ordinance of 1956. The principal purpose of the Ordinance was to ensure that only organizations with adequate capital and financial stability were permitted to carry on banking business in the country.

Although banks were largely left to run their business according to the dictates of external economic conditions, massive capital flight, especially in the 1960s, prompted the government to tighten monetary regulations. This forced the banks to borrow substantially from their head offices, an arrangement which proved advantageous to the economy and helped to finance the economy, preventing any crippling restraints. With the establishment of the Central Bank of Kenya on 24 March 1966, further developments became noticeable. For example, in January 1968, the Cooperative Bank of Kenya (the first locally owned bank) opened its doors for business. This was followed by the National Bank of Kenya, which was established in June 1968 and became operational in September 1968. With the introduction of government and merchant banking in 1971, other banks such as the Kenya Commercial Bank came into being.

Although at independence Kenya had only seven banks, by 1982, the number of banks more than doubled to 18. In 1993, the number of banks increased to about 25. Indeed, the banking industry in Kenya has been one of the fastest growing sectors in the Kenyan economy. Some of the factors, which have influenced the massive growth of banking sector in Kenya include the:

- i) reform of the financial sector leading to restructuring, rehabilitation and privatisation of banks;

- ii) liberalisation and increased deregulation of the financial sector;
- iii) entry of a number of foreign banks into local markets; and
- iv) start-up of capital markets e.g. Nairobi Stock Exchange; and abolition of exchange controls, among others³.

These reforms enabled a number of banks to make spectacular profits. At the same time, some banks with persistently poor management and imprudent lending policies were forced into liquidation.

In addition to a more stable banking system, customers have also benefited from the emergence of competition in the industry. As a result, there has been, in recent years, a reduction in bank charges, more attractive savings accounts (e.g. optimum savings), modern banking halls and a wider introduction of credit cards.

Although economists and financial analysts believe that Kenya is over-banked, the market share of this sector is mainly dominated by a few banks. For example, in 1998 only nine banks controlled 70% of total net assets and 69% of total deposits. The situation was further worsened by the banking crisis during the latter part of 1998. This caused some flight of deposits from small and medium banking institutions, thereby exacerbating the skewed nature of the market shares in favour of the relatively large banks (Central Bank of Kenya Bank Supervision Annual Report, 1998).

³ See Mayank Patel (1998).

5.4.3 Non-Bank Financial Intermediaries in Kenya

Although commercial banks are the most important lending and deposit institutions in Kenya, they are not the only financial outlets in the country. There are many other financial intermediaries known as non-bank financial intermediaries (NBFI), which range from small savings and credit associations to very large financial companies. In the developed countries with well-developed financial markets, these institutions serve as intermediaries between two groups of people (Ndele, 1991; Luckett, 1984). They sell a financial asset to one group and use the money generated to lend to another group. That is to say, they sell financial services to the public and in turn invest the money. In Kenya, as in other countries, NBFIs supplement the commercial banks mainly in deposits and in lending out credit to potential investors.

According to the Banking Act in Kenya, a non-bank financial intermediary is a company other than a commercial bank authorised to conduct financial business. A financial intermediary therefore accepts money deposits payable on demand or after the expiry of a fixed period or after notice of intention of withdrawal. It acts as a custodian of deposits. This definition however excludes building societies and insurance companies, which in some countries are regarded as financial intermediaries. Thus, a NBFI is not the same as commercial bank, even though it provides similar services. The main distinguishing features between NBFIs and banks is that NBFIs are prohibited from checking accounts, and do not therefore hold traditional demand deposits, and are not members of the clearinghouse. Dealings in foreign exchange, including financing of foreign trade, are also prohibited for NBFIs. In addition, NBFIs are prohibited from operating accounts at CBK, and therefore cannot borrow or discount at CBK.

The growth of NBFIs, unlike that of banking institutions, has followed a unique trend in Kenya since the 1980s. At independence, for example, there were only three non-bank financial institutions. During the 1980s and the early 1990s, this number increased to about 59. However, the number of NBFIs has been decreasing since then, and by June

2000, only 10 NBFIs were operating countrywide. This has been mainly due to most of the NBFIs having being converted into fully-fledged commercial banks during the era of financial liberalisation.

5.4.4 Financial Market Reforms and Development

This section highlights some of the financial markets developments and reforms that have taken place in Kenya. The section first deals with the role and subdivisions of the market, then followed by money market and finally capital market reforms and development in Kenya.

The Role of Financial Markets

Financial markets are often conveniently distinguished as 'money markets' and 'capital markets'. Here the concept 'money markets' does not mean markets for currency or demand deposits, but rather refers to those markets in which short-term debt instruments (of less than one year) are traded. Examples of money market instruments include Treasury bills, negotiate certificates of deposits, commercial papers, overdrafts, and so on. Capital markets, on the other hand, are concerned with long-term debt and equity instruments. These would include items such as long-term Treasury bills or corporate bonds⁴. There is an inextricable link between the money market and the capital market. In most cases, financial institutions use the money market to provide liquidity for their longer-term investments in the capital market. However, in the process of financial development, the development of a money market typically precedes the development of a capital market.

There are four participants in the financial markets. These include the borrowers (issuers of securities), the lenders (buyers of securities), the financial intermediaries (buyers and

⁴ See Wiketye (2000).

issuers of securities and other debt obligations) and the brokers⁵. According to Faure, financial markets constitute the mechanism that link surplus and deficit units, providing the means for surplus units to finance deficit units either directly or indirectly through financial intermediaries.

Financial markets are essential for the efficiency and solvency of financial systems and for the effective management of liquidity and money in the economy. The ultimate function of financial markets is to increase the financial resources available to the economy and to enable a more efficient use of those resources. Put slightly differently, financial markets facilitate financial intermediation and its management in order to stimulate and accelerate the process of economic growth (Popiel, 1990).

The Money Market

The major institutions operating in the money market are: i) the Treasury /Central Bank – which deal in Treasury Bills, Treasury Certificates, government stocks and all government borrowing instruments; ii) commercial banks – which deal mainly in bankers' acceptances, certificates of deposits and bankers' unit funds; iii) private companies – which deal mainly in commercial papers. The inter-bank market has also become more prominent in recent years.

In Kenya, the money market is mainly dominated by Treasury bills instruments, which serve as eligible assets. However, a number of developments and reforms have recently taken place in the market. For example, in 1995 the government introduced a 5-days minimum Treasury bills. Firms listed by the Nairobi Stock Exchange were therefore allowed to issue commercial papers and Treasury bills of 5 days maturity. In May 1996, the Treasury bills for 28, 91 and 182 days replaced the 30, 90, and 180 days; while the 60

⁵ Faure, A.P (SA Financial Sector Forum).

and 270 days were discontinued. In 1997, the Central Bank of Kenya re-introduced tap sales of Treasury bills alongside the primary auction in order to curb the rising trend of the Treasury bill interest rate. The tap sales allow unsuccessful investors in the primary market to invest in the bills at interest rates below those acceptable in the primary market auctions.

The Kenyan Capital Market Reforms

Capital markets are an essential part of the financial sectors of modern economies. By providing alternative savings tools to savers and non-bank sources of financing for enterprises, the capital markets promote economic growth through improved efficiency in savings mobilisation⁶.

The dealing in shares and stocks in Kenya started in the 1920s while the country was still a British colony. There was however no formal market, no rules and no regulations to govern stock-broking activities. Trading took place on a gentlemen's agreement in which standard commissions were charged with clients being obligated to honour their contractual commitments of making good delivery and setting relevant costs. At that time, stock-broking was a sideline business conducted by accountants, auctioneers, estate agents and lawyers who met to exchange prices over a cup of coffee (NSE Fact Book).

In 1954, the Nairobi Stock Exchange was constituted as a voluntary association of stockbrokers registered under the Societies Act. It is the only fully functioning stock market in Kenya where companies sell shares to raise equity capital, although there are informal over-the-counter markets for unlisted shares. The Nairobi Stock Exchange plays an increasingly important role in the Kenyan economy, especially in the privatising of state-owned enterprises. Initially, the business of dealing in shares was confined to the

⁶ See Schmidt-Hebbal et.al (1996); Wagacha (2001).

resident European Community. Africans and Asians were not permitted to trade in securities until after the attainment of independence in 1963. At the dawn of independence, stock market activities slumped due to uncertainty about the future of independent Kenya. However, confidence in the market was rekindled after three years of calm economic growth. In 1972, the growth of capital market was halted when the oil crisis introduced inflationary pressures in the economy, which depressed share prices. In 1975, a 35% capital gains tax was introduced, inflicting further losses to the exchange. At the same time the exchange lost its regional character following nationalisation, exchange controls and other inter-territorial restrictions introduced in neighbouring Tanzania and Uganda.

In 1980, the government realised the need to design and implement policy and institutional reforms to stimulate the development of capital markets. There are a number of reasons behind the implementation of these reforms – namely, to broaden the existing market, increase competition in the securities market, encourage secondary market development, and to improve the incentives for private capital among others. In 1989, for example, the Capital Markets Authority was formed under the Capital Market Authority Act. Cap. 485 A. The Capital Markets Authority is a key regulator of Kenyan capital markets. The aim of this body is to create a conducive environment for growth and development of the country's capital markets.

In 1991, the Nairobi Stock Exchange was registered under the companies Act and the “call over” trading system was phased out in favour of the floor-based “open outcry system” (NSE Fact Book, 2003). In 1994, the NSE was rated by the International Finance Corporation as the best performing market in the world with a return of 179% in dollar terms. During the same period, extensive modernisation exercise was undertaken, including setting up computerized delivery and settlement systems (DASS) and a modern information centre. In 1996, the NSE recorded the largest share issue in its history following the privatisation of the Kenya Airways. The stock exchange enabled more than 110,000 shareholders to acquire a stake in the airline. By 1998, about 56 companies were listed in the NSE.

In 1998, the government expanded the scope for foreign investment in Kenya by introducing incentives for capital markets growth including the setting up of tax-free venture Capital Funds, removal of capital Gains Tax on insurance companies investments, allowance of beneficial ownership by foreigners in local stockbrokers and fund managers, and the envisaged licensing of dealing firms to improve market liquidity.

In 2000, the following additional incentives were provided to the Capital Markets investments (NSE Fact Book).

- i) The final tax on dividends was reduced from a high of 15% to 7.5% (for foreign investors) and 5% (for local investors).
- ii) New and expanded share capital by listed companies or those seeking listing was exempted from stamp duty and VAT.
- iii) Expenses incurred by companies in having their financial instruments rated by an independent rating agency became tax deductible.

- iv) Registered and approved venture capital funds were granted a 10-year tax holiday.
- v) Income accruing to registered collective investment scheme was exempted from tax. Dividends were subject to 5% withholding tax. Interest received from deposits, government debt securities or corporate debt securities was however subject to a withholding tax of 15%. Gains arising from sale of shares were exempted from tax.

In order to encourage the transfer of technology and skills, foreign investors were allowed to acquire up to 49% of local brokerage firms, and up to 70% of local management companies. In July 2000, the Central Depository System (CDS) Act was passed by parliament. During the same period, the Capital Markets Authority Act was amended and renamed the Capital Markets Act. Some of the new provisions in the Amendment Act were

- i) the provision for the establishment of a Capital Markets Appeals Tribunal,
- ii) expanded powers for the Capital Markets Authority to intervene in the management of a licensee by way of appointing a statutory manager,
- iii) powers for the Capital Markets Authority to license, approve or accredit new institutional players in the market, including investment banks, authorised security dealers, credit rating agencies and registered venture capital funds,
- iv) tightening of the provision dealing with insider trading, and
- v) powers for the Capital Markets Authority to institute special audits on listed companies to serve investors and public interest, etc (NSE Fact Book).

In 2001, the Kenya's capital market was reorganised into four independent market segments, namely the main investment market segment (MIMS), the alternative investment market segment (AIMS), the fixed income securities market segment (FISMS) and, at a later stage, a futures and options market segment (FOMS). During the same period, the corporate tax rate of newly listed companies approved under the Capital Markets Act was reduced from the standard 30% to 27% - a tax rate which is fixed for a period for three years following the date of listing⁷.

5.4.5 Foreign Exchange Reforms

Kenya, like other developing countries, adopted gradual exchange rate liberalisation. Immediately after independence, the country maintained a fixed exchange rate system, which continued until the 1970s. For example, between 1964 and 1973, the exchange rate of the Kenyan shilling to the dollar averaged 7.1 (Kenyan National Development Plan, 2002-2008). In addition, the government maintained exchange controls from the early 1970s following the balance of payments crisis in 1971/72. The basic objective of foreign exchange controls was to conserve foreign exchange and control pressures on the balance of payments (Ndungu, 1999). In the early 1980s, the government devalued the shilling in reaction to macroeconomic imbalances triggered by oil shocks, severe drought and declining inflow of foreign savings. This marked the beginning of a flexible exchange rate system, with crawling peg dominating until 1990.

During this period, the currency depreciated phenomenally. For example, over the period 1982 and 1990, the real effective exchange rate of the Kenyan shilling depreciated by 38.2 percent and in nominal terms the value of the currency fell by 43.7% against the US dollar (Noland, 1996). In 1993, the government removed foreign exchange controls in order to enhance the country's competitiveness in the external market and also to attract foreign direct investment. However, following the sharp cessation of donor support in the

⁷ For more details, see NSE Fact Book (2003).

1990s, the process of exchange rate liberalisation was faced with a number of challenges. The result was capital outflows and loss of foreign exchange reserves. This forced the government to substantially devalue the Kenyan shilling between March and April and to re-introduce the 50% retention scheme of all foreign exchange in May 1993. In 1995, the Foreign Exchange Control Act was repealed, and successful stabilisation measures were effected.

Currently, like many other sub-Saharan African countries, Kenya's exchange rate floats independently, with the exception of isolated incidents where that floating is managed. The Kenyan exchange rate is determined in the foreign exchange inter-bank market. The official exchange rate is often set at previous day's averaged market. The official exchange rate applies only to government imports and external debt service payments for which there are specific budget allocations. CBK has, as stipulated in the Central Bank Act, sole regulatory power. It holds official foreign exchange reserves of the country for the purpose of: repaying and servicing the country's public external debt; and for the additional purpose of intervening in the interbank foreign exchange market. Such interventions are largely aimed at smoothing out erratic exchange rate fluctuations. In this way CBK helps to maintain orderly market conditions crucial for the shilling exchange rate stability.

Commercial banks are also authorized to enter into forward exchange contracts with their customers at market-determined exchange rates in currencies of their choice. There are no limits on the amount or period of cover. However, exchange rate volatility was experienced in 1996. This was mainly due to large short-term private capital inflows. The short-term inflows reflected the increased demand for foreign currency credit, the reduction in commercial bank's net foreign assets (due to low demand for forward cover by importers) and an increase in investment by non-residents (including institutional investors in Treasury bill market).

There is no control on outward investment and foreign transfers by residents in Kenya. Likewise, there is no control on inward investment and transfer by non-residents except for quantitative limits on the purchase of shares. There is no control on direct investment, outward or inward, but government approval is required for real estate purchases by non-residents.

Following foreign exchange liberalisation, foreign exchange bureaux were introduced in Kenya in 1995 in order to increase competition in the foreign exchange market. Initially, the bureaux were mainly engaged in foreign exchange spot transactions. At that time, only 28 bureaux were licensed by the Central Bank of Kenya countrywide. However, by December 1998, the number of foreign exchange bureaux increased to 45. Of these, 27 bureaux were located in Nairobi and its environs, six in the coastal region, and one in each of the towns of Nakuru, Kisumu and Eldoret. The weekly average transactions by bureaux have also increased significantly over the years. The transactions increased from US \$7.4 million in 1996 to US \$12.9 million in 1998, which accounted for 2.5% of the total foreign exchange transactions.

5.5 Post-Financial Liberalisation Challenges

The Kenyan financial sector, as in many other developing countries, has faced a number of challenges since the implementation of financial reforms in the 1980s and 1990s. Apart from high and increasing interest rates discussed extensively in section 5.3, some of the challenges that the country has experienced since the implementation of financial liberalisation relate to the fall in NBFIs. Other significant challenges are what is termed the 'banking distress' of the late 1990s, the wide spread between lending and deposit rates, mixed savings and investment trends, and low economic growth rate vis-à-vis financial depth. These sets of challenges are discussed separately below.

5.5.1 The Fall of Non-Bank Financial Institutions

Non-bank financial institutions (NBFIs) in Kenya increased dramatically in number and size during the 1970s and 1980s. This can be ascribed to the different CBK regulations that were applied to commercial banks and NBFIs. For example, commercial banks were subjected to lower loan rate ceilings, higher liquidity requirements, and limits on private sector credit expansion. In addition, they could not levy non-interest fees. Non-bank financial organisations, on the other hand, were subjected to higher interest rate ceilings, and were able to mobilise long-term liabilities by offering higher deposit rates and by providing increased long-term funds to a broader group of clients, including small-scale firms.

Given these different regulations, the NBFI sector expanded rapidly in the 1980s, and many commercial banks were motivated to set up non-bank financial institutions to circumvent the central bank regulations and supervision. However, due to these low-entry barriers and the inadequate supervision of NBFIs by the monetary authorities, many NBFIs became under-capitalised and suffered from poor management. Thus, as NBFIs increased their competition with the commercial banks, they ended up investing in riskier assets, mismatched asset and liability maturities, and offered higher interest rates on time deposits, squeezing their margins. By 1986, for example, a credit squeeze resulted in four banking groups, which owned NBFIs, and in 1987, the problem of liquidity and insolvency spread to more parts of the NBFI sector.

During the post-1987 period, the high growth rate of the NBFIs declined considerably. This decline was particularly drastic from 1993 when the NBFIs were ordered by CBK either to convert into commercial banks or to merge with commercial banks and maintain certain cash-to-deposit ratios. By 1997, for example, the level of deposits held by the NBFIs had systematically dwindled to a mere 7.4 percent of commercial bank deposits⁸.

⁸ See NSE (2001)

By June 2000, the number of NBFIs had declined to only 10 from 59 during the 1980s and the early 1990s as most of the NBFIs transform their operations into banking institutions.

5.5.2 The 'Banking Distress' of the 1980s and 1990s

Following the period of rapid growth in the 1970s and 1980s, the Kenyan banking system started experiencing financial difficulties, especially in the late 1980s and early 1990s. During this period, a number of commercial banks and NBFIs were operating in insolvent and/or illiquid conditions, while others were experiencing increasing portfolio and other financial problems. This disarray in the banking system was mainly attributed to⁹

- i) poor discipline in the banking industry, as exemplified by the continued violations of major prudential regulations,
- ii) laxity and excess in licensing new entrants into the system, resulting in the proliferation of banks and NBFIs,
- iii) the weakness, notwithstanding the subsequent improvement, of banking supervision exercised by CBK, particularly in terms of actual enforcement and sanctions,
- iv) the poor management and unsound practices of many banks/NBFIs, characterized by pervasive insider lending, connected lending, and conflicts of interest among others,

⁹ See Kenya Financial Sector Policy Note (1993).

- v) poor performance and financial difficulties experienced by enterprises in the real sector during 1991/92 also undermined their capacity to service their debts to banks and NBFIs, and
- vi) financial turmoil brought about by the March/April 1993 devaluations of the Kenyan shilling, and the widespread expectations of significantly increased interest rates (due to the inflationary pressure) adversely affected the financial performance of many enterprises and consequently the loan portfolio quality of the banks/NBFIs.

Following the banks' failure in 1986, CBK designed a strategy to restructure the ailing institutions to preserve public confidence in the banking system. This exercise was planned in two phases. Both phases involved a group of 10 ailing institutions. However, unlike the first phase, the second phase was designed to rely more on independent efforts by the shareholders of these institutions to inject capital and improve operational efficiency without upsetting the interest of depositors. However, this was not successful, due to the inability or unwillingness of the Bank to enforce its supervisory powers or to come up with alternative solutions (World Bank, 1992). As a result, during this phase most of the institutions experienced serious problems. This situation intensified in 1992 when 11 commercial banks and 20 NBFIs were experiencing financial distress (Ngugi and Kabubo, 1998; Swamy, 1994).

By 1996, the Deposit Protection Fund liquidated about 55% of the institutions. As a further step towards achieving competitiveness and strengthening the monetary policy, a move was made in mid-1994 to convert some NBFIs to commercial banks.

The situation discussed above worsened and, during 1998, the Kenyan banking sector underwent turbulence, which culminated in five banks being put under statutory

management, including four small and one medium size banks. The crisis was precipitated by banks' imprudent practices, including reckless lending, mismanagement, and heavy borrowing by insiders. For example, during this period the fourth largest bank experienced a deposit run, leading to liquidity problems. The audited results indicated that the sector's profit dropped by 55% from the previous year. This was largely due to higher provisioning for an increased level of non-performing loans. The main reasons for the bank failures during this period were¹⁰:

- i) difficulties faced by banks in the recovery of non-performing loans through the judiciary system;
- ii) conflict of interest in those cases where shareholders participated in the day-to-day management of their banks;
- iii) high level of non-performing loans caused by poor lending practices, which were compounded by mismanagement and outright fraud;
- iv) loans to non-viable projects, which appeared to have been advanced on official influence;
- v) insider lending to directors and their associates for non-viable investments;
- vi) under-capitalisation for some banking institutions; and

¹⁰ See Bank Supervision Annual Report 1998.

- vii) over-investment in the speculative property market, which is currently experiencing a dramatic drop in prices.

In an effort to stabilise the banking system and to avert future crises, a number of measures were undertaken:

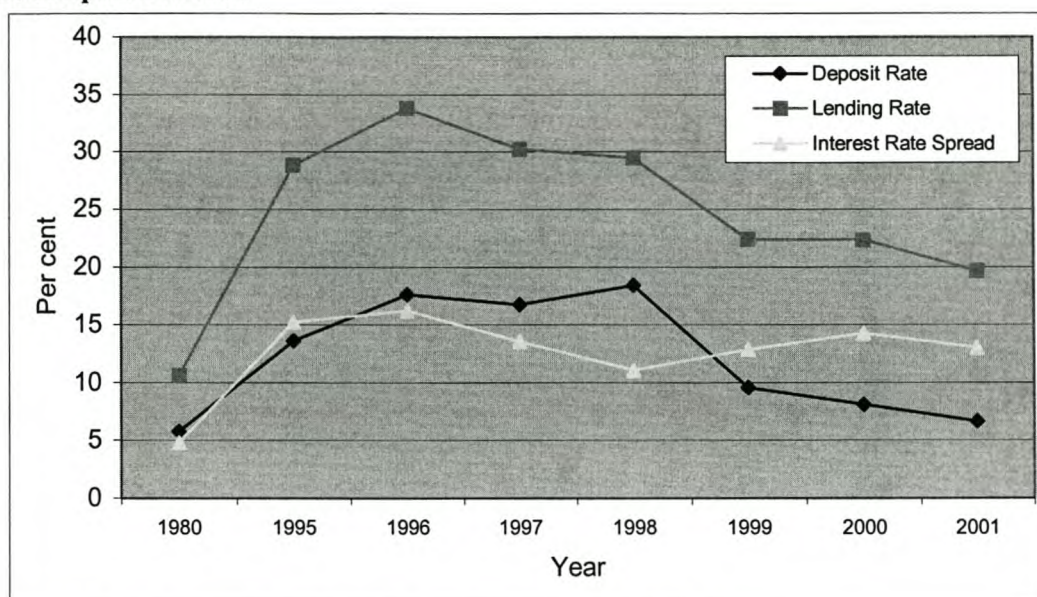
- i) The Banking Act was amended to empower the central bank to *inter alia*, levy penalties for failure to comply with prudential requirements.
- ii) Bank capitalisation was increased by raising the minimum paid up capital requirements for institutions.
- iii) The government progressively disinvested from the banking system.
- iv) Small banks were encouraged to merge so as to enjoy economies of scale.
- v) Bank regulations were further tightened, especially for the reopening of any institution under statutory management.
- vi) Measures were taken to ensure that bearer certificates of deposit were systematically phased out from the banking system and institutions were given up to end of 1999 to do so. This action was taken because these instruments were observed to be volatile in nature and were being used for money laundering and other malpractices (Bank Supervision Annual Report, 1998).

- vii) A credit bureau was launched in order to assist commercial banks in their credit risk assessment. The first credit bureau was officially launched in February 1999. The bureau collects and disseminates creditor data from many sectors with special emphasis on the banking sector.

5.5.3 Spreads Between Lending and Deposit Rates

The gap between lending and deposit rates in Kenya has widened considerable since the liberalisation of interest rates in 1991. Before interest rate liberalisation, the spread between the lending and deposit rates oscillated mainly between 2.3% and 5.5%. A 5% spread was maintained between 1971 and 1973, before being increased to 5.18% in 1974. Between 1975 and 1979, the spread was reduced and maintained at 4.87%. Following the implementation of the structural adjustment program in the 1980s, the spread was narrowed significantly. For example, the spread decreased from 4.83% in 1980 to 2.56% in 1983. Between 1984 and 1986, the interest rate spread varied between 2.65% and 2.75%. Between 1987 and 1989, the interest rate spread increased dramatically. The rate increased from 3.69% in 1987 to 4.67% in 1988 and 5.25% in 1989 before decreasing to 5.05% in 1990. However, since 1991 the interest rate spread has maintained a double-digit level. For example, the spread increased from 5.08% in 1990 to 15.2% in 1995 and 16.2% in 1996. Although the spread somewhat decreased in 1997 and 1998 to 13.53% and 11.09% respectively, the spread further increased between 1999 and 2001. The spread was 12.83% in 1999, 14.24% in 2000 and 13.03% in 2001. Figure 5.3 shows the spread between deposit and lending rates in Kenya During 1995 and 2001 as compare to 1980.

Figure 5.3: The Spread between Deposit and Lending Rates in Kenya During 1995-2001 as compared to 1980



Source: Compiled from International Financial Statistics Yearbook (2002).

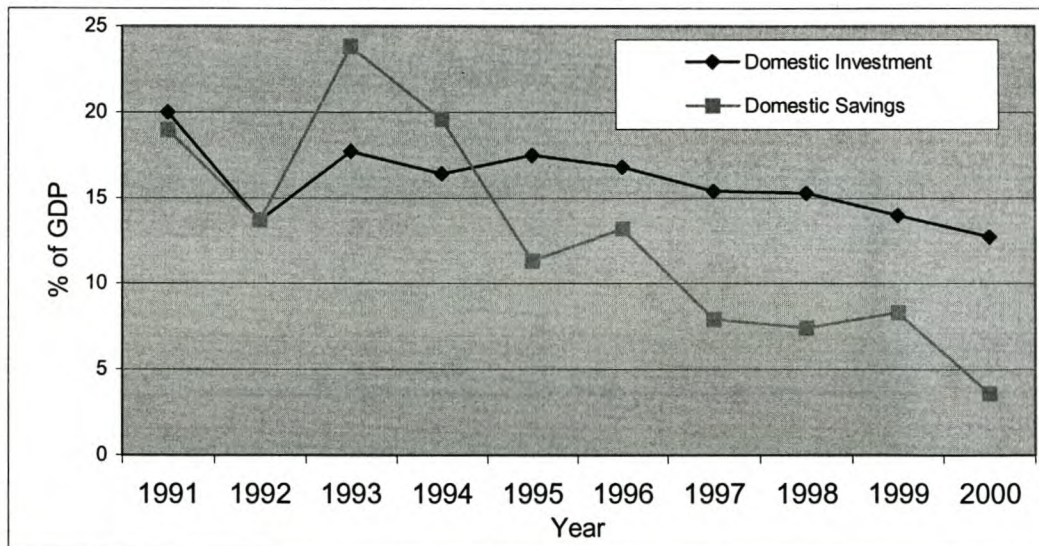
N/B: Interest Rate Spread = Lending rate - Deposit rate

5.5.4 Post-Financial Liberalisation Savings and Investment Trends

Savings and investment trends in Kenya since the liberalisation of financial sector, like many developing countries, are mixed. It is therefore difficult to say with certainty whether financial liberalisation in Kenya has succeeded in mobilising savings and channelling funds to productive investment. For example, in 1998, gross domestic investment as a percentage of GDP decreased to 17% from over 19% in 1994. Even though the country recorded a marginal decline in interest rates during the fiscal year 1998/99, the expectation that the decline in the interest rates would eventually encourage private sector borrowing and investment did not materialise. Instead, the decline led to a worsening balance of payments situation as short-term capital left the country. CBK's 2000 annual report attributes the slowdown in economic activity in Kenya over the years 1997 to 2000 to a continuing decline in investment. The ratio of investment to GDP declined from 21.8% in 1995 to 20.4% in 1996, 18.5% in 1997, 17.4% in 1998, and 16.1% in 1999.

Although Kenya has one of the most sophisticated and diversified financial systems in sub-Saharan Africa, the share of domestic savings held as financial assets within the financial sector averaged only 30% in the period between 1984 and 1987, which is similar to the 1970s level. Overall, the average gross domestic savings recorded before the liberalisation of the financial sector is by and large higher than the gross domestic saving recorded after liberalisation. For example, the ratio of domestic savings to GDP continued on a downward trend, declining for the third successive year to 11.8% in 1999 from 15.4% in 1996. According to CBK report, the Kenyan economy requires an investment/GDP ratio of about 25%, sustained over time, in order to raise the growth rate of real GDP to 6% per annum. The country is currently targeting a sustained GDP growth of 6% in order to address the twin problems of unemployment and poverty. Figure 5.4 gives the general trends of domestic savings and investment as a percentage of GDP over the period 1991-2000.

Figure 5.4: Savings and Investment Trends in Kenya



Source: Compiled from African Development Indicators (2002)

5.5.5 Financial Liberalisation, Financial Depth and Economic Growth

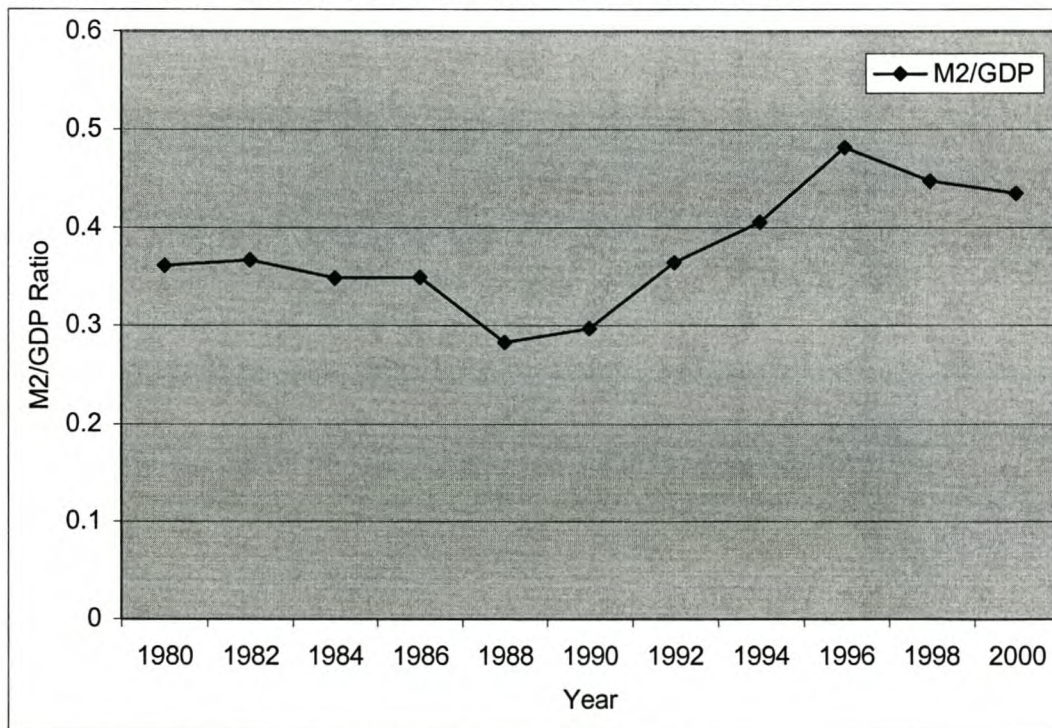
One of the main objectives of financial liberalisation is to boost financial depth. The main channel through which this occurs is via interest rate liberalisation. When interest rate is liberalised, nominal interest rates tend to be higher than the prevailing inflation - leading to high real deposit rate. Higher deposit rates serve as an incentive for depositors. In addition, greater non-price competition for deposits among banks, which results from financial liberalisation leads to greater deposit mobilisation, thereby leading to financial deepening. Ultimately an increase in financial depth is expected to boost economic growth.

The general trends of financial depth in Kenya, as proxied by M_2 as the percentage of GDP (M_2/GDP), shows that Kenya's financial depth has increased considerably since the implementation of financial liberalisation. The M_2/GDP ratio increased from about 0.298 in 1990 to 0.314 in 1991 and later to about 0.364 in 1992* following the liberalisation of interest rates in 1991. Between 1992 and 1997, a marked financial deepening took place in Kenya, with the highest M_2/GDP ratio (0.484) being recorded in 1997. Although the M_2/GDP showed a slight decline between 1998 and 2000, the ratio is still by and large higher than then pre-financial reforms ratio. Overall, the Kenyan financial sector is well developed and deep in comparison to most countries in sub-Saharan Africa.

Even though on average financial depth in Kenya has shown a significant improvement since the onset of financial liberalisation, economic growth has, in contrast, taken a different trend. During the early years of independence, Kenya achieved commendable economic growth compared to other SSA countries. Between 1975 and 1985, the average annual percentage growth in GDP was 4.7%. During the period 1985 to 1989, the average growth in GDP increased dramatically to 5.9%. However, in 1991 the percentage change in GDP growth declined to 1.4%. In 1992, Kenya recorded a historic low GDP growth rate of -0.8% - the lowest since independence. However, between 1993 and

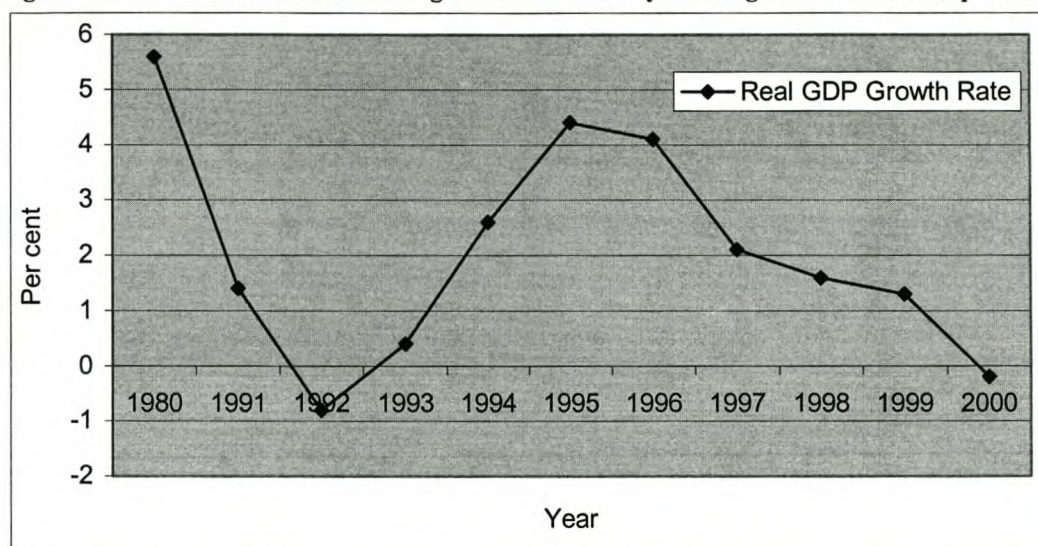
1995, the GDP growth increased considerably. The GDP growth rate increased from about -0.8% in 1992 to 0.4% in 1993 before further increasing to 2.6% in 1994. By 1995, the GDP growth rate had reached 4.4% . But this high growth rate did not last for long. The GDP growth rate declined again systematically from 4.1% in 1996 to 2.1% in 1997 and 1.6% in 1998. In 1999 the GDP growth rate was about 1.3% and by 2000, a negative rate of about $(-) 0.2\%$ was recorded (See African Development Indicators, 2002). Figure 5.5 shows the trend of M_2/GDP between 1980 and 2000 while Figure 5.6 shows the annual growth rate of GDP in Kenya during the period 1991 – 2000 as compared to 1980.

Figure 5.5: The Trend of M_2/GDP ratio in Kenya between 1982 and 2000



Source: Compiled from International Financial Statistics Yearbook (2002).

Figure 5.6: The Trend of Annual GDP growth Rate in Kenya During 1991-2000 as compared to 1980



Source: Compiled from African Development Indicators (2002)

5.6 Sequencing of Financial Liberalisation (1985-2001)

Kenya initially adopted a gradualist approach to financial liberalisation. Although financial reforms started as early as 1980, it was only in 1991 when interest rates were fully liberalised. In terms of financial liberalisation sequencing, Kenya adopted an approach that was more or less typical for developing countries. The country first pursued internal financial liberalisation before proceeding with external financial liberalisation. In this section, some of the financial reforms, which have been implemented between 1985 and 2001, are highlighted sequentially in tabular form. The survey includes both domestic and external financial liberalisation. Some of the financial reform policies covered in this overview include the liberalisation of interest rates, directed credit, cash reserve and liquid asset requirements, competition in financial markets, supervisory/prudential regulatory changes, exchange rate liberalisation, and capital account liberalisation.

Sequencing of Financial Reforms in Kenya Between 1985-2001

Year	Financial Reform
1985	<ul style="list-style-type: none"> • Banking Act was implemented.
1986	<ul style="list-style-type: none"> • (September) Deposit Protection Fund was established. • (December) Cash ratio was introduced for commercial banks.
1987	<ul style="list-style-type: none"> • The Building Societies Act was adopted.
1988	<ul style="list-style-type: none"> • Major restructuring program of the financial sector started.
1989	<ul style="list-style-type: none"> • (June) FSAP credit was approved. • (July) indirect monetary measures were initiated. • (November) Legislation providing for establishment of Capital Market Authority was passed by parliament. • (November) Minimum saving deposit rate payable by banks and NBFIs was raised by 0.5%, and maximum lending rate for loans and advances not exceeding three years raised to 15.5%. • The Banking Act (1968) was revised, strengthening the activities of the central bank.
1991	<ul style="list-style-type: none"> • (July) Interest rate was fully liberalised. • (October) Convertible foreign exchange bearer certificates (Forexcs) were introduced, representing the first step towards the liberalisation of the foreign exchange market. • (November) Exchange control accounts were partially relaxed by withdrawing the clause covering declaration of foreign currency held by incoming travellers.

<p>1992</p>	<ul style="list-style-type: none"> • (January) Minimum capital/assets ratio was raised from 5.5% to 7.5% and prudential guidelines were prepared to encourage self-regulation; including code of conduct of directors, chief executive and other employees. • (April) The secondary market for foreign exchange bearer certificates (Forexcs) was established. • (August) Retention scheme was introduced, allowing 100% retention for foreign exchange earnings from non-traditional exports. • (October) Commercial banks were allowed to borrow foreign exchange currency to finance tea and coffee purchase in auctions. • (October) New penalties were announced for commercial banks failing to observe the mandatory cash and liquidity ratios.
<p>1993</p>	<ul style="list-style-type: none"> • (February) Foreign exchange allocation by central bank was abolished. • (March) Foreign exchange certificate was made redeemable at market exchange rate. • (March) The Kenyan shilling was officially devalued by 25%. • (March) Retention account was suspended. • (April) The margin on the central bank advances and discount to banks was increased. • (April) The Kenyan shilling was officially devalued by 33%. • (May) New penalties for banks failing to observe the mandatory cash ratio were announced. • (May) The retention scheme (50%) of all foreign exchange was re-introduced.

<p>1993</p>	<ul style="list-style-type: none"> • (May) Further liberalisation of the foreign exchange system took place, thereby allowing commercial banks to effect foreign payments for their private clients without referring to the CBK. • (June) One-way foreign exchange auction system was introduced. • (June) Cash ratio was raised from 8% to 10%. • (August) A two-tier foreign auction system introduced. • (October) The shilling exchange rate was allowed to float freely. • (October) Cash ratio was raised from 10% to 12% with balance above the minimum requirement to earn interest at 35% per annum. • (November) Central bank started daily foreign exchange transactions with commercial banks. • (November) Credit guidelines abolished. • (November) Cash ratio was raised from 12% to 14% with excess balances paid 35% interest per annum. • (November) Restriction on remittance of profits, dividends, and expatriate earnings was removed.
<p>1994</p>	<ul style="list-style-type: none"> • (February) Cash ratio was increased from 14% to 16% within interest paid on bank balances with bank in excess of 10% reduced from 25% to 20%. • (February) Foreign exchange retention was raised to 100%. • (February) Residents were allowed to open foreign currency accounts with banks in Kenya. • (February) Restrictions on local borrowing by foreign-controlled companies were removed.

<p>1994</p>	<ul style="list-style-type: none"> • (February) Foreigners allowed to pay hotel bills and air tickets in either foreign or Kenya currency. • (March) Liquidity ratio for commercial banks and non-financial institutions were set at 5% and 10%, respectively, above the current commercial bank cash ratio requirement. • (March) Cash ratio was raised from 16% to 20% and interest payment on commercial bank deposits at the bank withdrawn. • (June) Kenya accepted article VIII status. • (September) Commercial banks were required to back the funds retained overseas 100% by foreign assets. • (September) The determination of the exchange rate by market forces was reinstated. • (September) Cash ratio was lowered from 20% to 18%. • (December) The requirement for non-bank financial institutions (NBFIs) to open account with CBK for purposes of maintaining cash ratio was announced.
<p>1995</p>	<ul style="list-style-type: none"> • (January) Authorisation and licensing of foreign exchange bureaus was announced. • (January) Foreign investors were allowed to participate in stock exchange market under guided policy on ownership. • (March) Commercial banks were to observe foreign exchange exposure limit of 20% of the paid up capital plus unimpaired reserves. • (June) A Treasury bill, minimum five days was introduced. Firms listed by NSE were allowed to issue commercial papers and Treasury bills of five days maturity.

<p>1995</p>	<ul style="list-style-type: none"> • (July) NBFIs were subjected to the mandatory cash ratio requirement. The requirement was initially set at 1.8% of eligible deposits and raised progressively to 18% by December 1995. • (July) The conditions for overnight loans and rediscounting at central bank by commercial bank were tightened. • (July) Investment compensation fund was established to protect investors against losses arising from equity trading. • (July) Foreign capital regulations were revised to enable foreigners to own up to 40% of local company listed in Nairobi Stock Exchange, and equity participation by a single investor was increased from 2.5% to 5.0%. • (July) Liquidity ratio was fixed at 25% for both banks and NBFIs and 20% for mortgage finance companies. • (August) Minimum investment in Treasury bills under OMO lowered to Kshs 100,000 from Ksh 1000,000. • (October) Banking Act was amended. • (December) Central bank started paying 5% interest on all cash balances held by commercial banks and NBFIs at CBK to facilitate a reduction in banking lending rates. • (December) NBFIs were required to invest in Treasury bills. • (December) The Exchange Control Act was repealed. • (December) The cash ratio was raised to 18%.
--------------------	---

1996	<ul style="list-style-type: none"> • (January) CBK started to display OMO rates on the Reuters Monitor Screen, to encourage independent decision on quotation for the purchase of Treasury bills. • (May) The Treasury bills for 28, 91 and 182 days replaced the 30, 90, and 180 days; while the 60 and 270 days were discontinued. • (May) Cash ratio requirement was relaxed to allow fluctuations of up to a minimum of 15% but an average of 18% for 14 days. • (May) 5% interest that commercial banks received on the cash balances with the central bank was discontinued. • (September) Repurchase agreements (repos) were introduced. Repos are basically agreements made by CBK to buy back at short notice earmarked Treasury bills sold to a bank. This facilitates temporary withdrawal of liquidity from banks upon sale but the situation normalises when CBK buys back Treasury bills or reverses the repos.
1997	<ul style="list-style-type: none"> • (January) CBK instituted a central depository system, which enhanced efficiency in the re-discounting and redemption of Treasury bills. • (April) The Central Bank of Kenya Act was amended. The amendments were aimed at enhancing the efficiency of operations of the financial system and thereby maximising the system's impact on economic growth. • (June) The minimum liquidity ratio requirement for banks and NBFIs was lowered from 25% to 20% in order to ease pressure on interest rate (i.e. to convince the commercial banks to lower their lending rates). • (July) The use of two-way repos between CBK and commercial banks was introduced. • (August) Commercial banks were required to quote base lending rates in the daily press to enhance transparency and competitiveness.

1997	<p>in the daily press to enhance transparency and competitiveness.</p> <ul style="list-style-type: none"> • (November) CBK re-introduced tap sales of Treasury bills, alongside the primary auction in November 1997, in order to curb the rising trend of the Treasury bill interest rate. The tap sales allow unsuccessful investors in the primary market to invest in the bills at interest rates below those acceptable in the primary market auctions.
1998	<ul style="list-style-type: none"> • The licensing procedures for banks, NBFIs and building societies were streamlined to conform to the international practices. • Banks and NBFIs were required to declare specific base lending rates. This was to enhance transparency and competitiveness in the banking industry, with loan offers to customers based on the base lending rate plus a margin. • Compliance with the cash ratio requirement was enhanced by raising the penalty for defaulters to 0.25% per day with daily penalty doubling to 0.5% for continuous defaulting exceeding 15 days. Institutions that default for 30 days within a 60 day period would be brought under CBK management.
1999	<ul style="list-style-type: none"> • (February) The first credit reference bureau was launched. • Bearer certificate of deposits (BCD) were phased out. • One commercial bank, licensed in 1998 to undertake micro-finance business started operating. • (June) The Banking (Penalties) Regulation was issued under legal Notice No. 77 of 10th June 1999. • A credit rating agency began operations towards the end of 1999.

2000	<ul style="list-style-type: none">• The Banking Act was further amended to facilitate effective supervision.• The capital of banking institutions was refined to confirm to the Basle capital accord.• Minimum core capital for banks and mortgage finance companies was increased from Kshs. 200 million to Kshs. 500 million while that of non-bank finance institutions was raised from Kshs. 150 million to Kshs. 375 million. These increments will be gradual so that the new levels are achieved by 2005.• The Building Societies Act was amended to ensure that building societies are subjected to similar conditions with mortgage finance companies.
------	--

Source: *Central Bank Annual reports (Various issues); Central Bank Monetary Policy Statements (various issues); Economic Surveys; Government Reports (various issues); Budget speeches; Ngugi and Kabubo, 1998; and Moriera, 1999.*

5.7 Concluding Remarks

In this chapter, Kenya's experiences with financial liberalisation have been reviewed. The chapter also highlighted some of the financial reforms and development that have taken place since the onset of financial liberalisation in Kenya. There has been an attempt here to assess whether there has been any evidence of increased savings, investment, financial depth and economic growth during post-reform period. Some challenges facing Kenya's financial sector have also been articulated in this chapter. Based on the findings of this chapter, the following conclusions can be drawn.

- 1) Kenya has a relatively well-developed financial sector characterised by a number of specialised financial institutions. By 1999, the financial system comprised 55 commercial banks, 16 non-bank financial institutions, four building societies, 44 foreign exchange bureaux, two mortgage finance companies, a large Post Office Savings Bank and the well established Nairobi Stock Exchange, among others.
- 2) The Central Bank of Kenya has implemented a number of institutional and monetary policy reforms in order to increase competition in the financial sector and to strengthen its regulatory and supervisory roles. The amendment of the Central Bank Act in April 1997 gave the Bank greater monetary autonomy. Though required to support the general government economic policy, the Central Bank of Kenya has independence in exercising the powers conferred on it by the Central Bank of Kenya (Amendment) Act, 1996.
- 3) Kenya adopted a gradualist approach to financial liberalisation. Although financial reforms started as early as 1980, it was only in 1991 when interest rates were fully liberalised. In terms of sequencing of financial liberalisation, Kenya

adopted a more or less general approach prescribed for developing countries. The country first pursued internal financial liberalisation before proceeding with external financial liberalisation. Interest rates were liberalised in 1991. In February 1993, the foreign exchange allocation by the Central Bank of Kenya was abolished and in October 1993, the shilling exchange rate was allowed to float freely. In January 1995, the authorisation and licensing of foreign exchange bureaux was announced, while in December 1995 the Foreign Exchange Control Act was repealed.

- 4) Even though the financial sector in Kenya has undergone substantial reforms over the last decade, the market is still dominated by a few banks. For example, by 1998 it was estimated that only nine banks controlled 70% of the market share. This can be partly attributed to the financial distress in the 1990s when the number of commercial banks placed under the statutory management of the central bank increased fivefold: from one in 1994 to five in 1998.
- 5) The liberalisation of the financial sector has also led to the contraction of non-bank financial institutions (NBFIs) and the expansion of commercial banks. For instance, the number of Kenyan NBFIs declined from 55 in 1993 to 10 in 2000, while the number of commercial banks increased from 32 to 51 during the same period, respectively. The overriding reason for this dramatic decline in NBFIS is that during the era of financial liberalisation, most NBFIs in Kenya were converted into full-fledged commercial banks. It is also worth noting that during the era of Kenyan financial repression, NBFIs and commercial banks were subject to different central bank regulations. For example, NBFIs were subjected to higher interest rate ceilings and lower liquidity requirements, which enabled them to provide long-term funds to a broader group of clients. For this reason,

many commercial banks were motivated to set up non-bank financial institutions to circumvent central bank regulations and supervision.

- 6) Although the devastating effects of financial repression are undeniable, the high and increasing interest rates, especially during the late 1990s almost completely negated the beneficial effects of interest rate liberalisation in Kenya. Some of the factors that contributed to this high increase in interest rates during this period include: i) expectations of higher inflation; ii) monetary and fiscal policies; iii) excess demand for loans; iv) inadequate competition in the financial sector; v) non-performing loans; and vi) fear of exchange rate depreciation. Moreover, the spread between the lending and deposit rates, which has widened somewhat since the implementation of financial reforms, makes it very difficult to make a conclusion on the overall efficacy of financial liberalisation in Kenya.
- 7) The Kenyan experience with financial liberalisation has, as in other sub-Saharan African countries, been mixed. While Kenya has experienced an overwhelming increase in financial depth (M2/GDP) after financial liberalisation, the general trends of interest rate spreads, savings, investment and economic growth during the post-reform period vary widely and overtime. For example, the spread between lending and deposit rates increased after financial reforms and widened considerably. The spread increased from 5.08% in 1990 to 16.2% in 1996. The spread decreased between 1997 and 1998, but later increased significantly between 1999 and 2001.

Although savings and investment increased somewhat during 1992-1994 immediately after interest rate liberalisation - with savings exceeding investment, they later declined significantly after 1994. Since 1994, savings and investment

rates have declined phenomenally. For example, in 1998 gross domestic savings as a percentage of GDP decreased from about 18% in 1994 to 11% in 1998. During the same period, gross domestic investment as a percentage of GDP also decreased from over 19% to about 17%.

The trend of financial depth as proxied by M2/GDP, however, shows that Kenya's financial depth has increased considerably since the implementation of financial liberalisation. Between 1991 and 1997, the M2/GDP ratio increased considerably – even the ratio decreased somewhat between 1998 and 2000.

However, the trend of economic growth after reforms is mixed. The real GDP growth rate increased significantly between 1993 and 1995 after financial liberalisation, but later declined slightly in 1996. However, between 1997 and 2000 the real growth rate declined systematically from 2.1% in 1997 to -0.2 in 2000.

CHAPTER 6

FINANCIAL LIBERALISATION IN SOUTH AFRICA

6. Introduction

This chapter is a review of the South African experience of financial liberalisation. The chapter is structured similarly to the last on Kenyan financial liberalisation, and is divided into seven sections. Section one is an overview of South African financial liberalisation. In section two, the origin of South African interest rate liberalisation is presented. Section three is an analysis of South African interest rate behaviour since the 1960s. For simplicity, the analysis has been divided into two parts dealing separately with interest rate behaviour before and after interest liberalisation in 1980. Section four is a review of the development of the South African financial sector, as well as of the associated reforms which have been undertaken to date to strengthen the sector. Some of the reforms discussed in this section include those of the central bank, in banks and other financial institutions, of financial markets and of foreign exchange controls. Section five highlights some of the post-financial liberalisation challenges facing South Africa. Some of the challenges discussed in this section relate to trends in inflation rates, exchange rates, interest rate spreads, savings, investment, financial depth and economic growth after financial liberalisation. Section six lists the various aspects of the South African financial liberalisation chronologically, including some significant aspects of the development of the South African financial sector before the process began (1965-1979) and after the most important reforms were enacted (up to and including 2001). In this section, the emphasis is on policies such as interest rates ceilings, credit rationing, fixed exchange rate policies, foreign exchange controls and reserve requirements, among others. For clarity and simplicity, this analysis has been presented in a tabular format. In section eight some concluding remarks are made.

6.1 An Overview of Financial Liberalisation in South Africa

Financial liberalisation in South Africa was initiated shortly after the De Kock Commission Reports of 1978 and 1985. Interest and credit controls were virtually removed in 1980, while banks' liquidity ratios were reduced substantially between 1983 and 1985.

Credit ceilings were in effect in the 1960s and 1970s. The South African Reserve Bank placed a maximum limit on the amount of loans, which banks may extend in 1967. In 1968 credit ceilings were extended to cover bank investment in private sector securities. The ceilings were later extended even to non-monetary banks in order to curb competition in 1970. Although credit ceilings were abandoned in 1972, bank credit ceilings to the private sector were later re-imposed in 1976. Between 1977 and 1979 further credit ceilings were tightened at various points. However, in September 1980 the credit ceilings were abolished. The Register of Cooperation, which limited bank competition, was also eliminated in 1983.

Although South Africa rapidly liberalised its financial sector in 1980, capital controls were later tightened in 1985 in response to capital flight following the worldwide imposition of economic sanctions against the country. For similar and related reasons, foreign exchange controls were maintained throughout the 1980s and early 1990s. Exchange controls only saw change in 1995 when those on non-residents were eliminated, and those on residents were relaxed (Williamson and Mahar, 1998).

In comparison with other developing countries – and even by world standards - South Africa is considered to have a highly developed and sophisticated financial system. The

Johannesburg Stock Exchange (JSE), which was formed in 1887, is ranked as the 18th largest stock exchange in the world in terms of market capitalisation (Bureau of Africa Affairs, April 2000). The South African Reserve Bank (SARB), which is one of the oldest central banks in the world, performs all traditional central-banking functions. The bank is independent and operates in the same way as Western central banks, influencing interest rates, and controlling liquidity through the interest rates on funds provided to the private banks.

By 1997, South Africa had about 51 licensed banks. In addition, there were five mutual (or community) banks. Out of the 51 licensed banks, eight were branches of foreign banks, while 11 were subsidiaries of foreign banks. Today, there are about 60 banks in South Africa, including 13 branches of foreign banks, and four mutual banks.

6.2 Interest Rate Liberalisation in South Africa

During the 1960s and 1970s the South African interest rates just like other financial prices were quantitatively controlled. For example, the deposit rate control, which was in the form of maximum deposit interest rates payable on deposits with banks and building societies were introduced in 1965, with the first upper limits being imposed in March 1965. This measure was as a result of the need to protect building societies, which were by then competing with banks for funds. In 1970, the upper limits imposed on deposit rates payable on banks and building societies deposits were dropped and the government later decided to subsidise certain interest rates. However, in 1972 these controls were reintroduced again.

Interest rate controls were not only applicable to deposit rates but also to lending rates. In terms of the Limitation and Disclosure of Finance Charges Act, Act No. 73 of 1968 (as amended), finance charges on money loans and hire-purchase credit were subject to a certain maximum. Even though the main purpose of this legislation was to prevent the

public's exploitation by money-lenders, it effectively imposed a ceiling on the price of credit in the financial markets¹.

South Africa liberalised both its lending and deposit rates in 1980. The rationale for this rapid interest rate liberalisation was to allow banks greater flexibility and to encourage competition. After the liberalisation of interest rates, banks were able to vary rates charged to borrowers according to their cost of funds and according to creditworthiness of different borrowers. Although the monetary authorities expected interest rates to be positive in real terms after their deregulation, interest rates generally remained negative in real terms. It was not until the 1990s that a distinct positive interest rate was attained. After 1990, the rates remained fairly and consistently positive over and above inflation, with the exception of 1992, when rates fell drastically. High interest rates became necessary in order to attain the twin objectives of curbing inflation and maintaining a current account surplus.

6.3 Interest Rates Behaviour in South Africa Before and After Liberalisation

Interest rates behaviour in South Africa, as in Kenya, can conveniently be divided into two – namely, pre-reform trends and post-reform trends. During the pre-reform period nominal interest rates were low and in most cases real interest rates were negative. Following the liberalisation of interest rates in 1980, nominal rates increased significantly, although real interest rates in most cases remained low and negative until the mid-1980s. Section 6.3.1 reviews pre-reform interest rates trends, while section 6.3.2 discusses the post-reform interest rate trends.

6.3.1 Interest Rates Behaviour Prior to the 1980 Interest Rate Liberalisation

During the period (1960s–1980s), interest rates in South Africa were largely controlled. The South African Reserve Bank was responsible for determining maximum and minimum deposit and lending rates respectively. Between 1967 and 1975, the minimum

¹ See McCarthy (1983).

deposit rate and prime overdraft lending rates were set at 2% and 2.5% respectively above Bank rate. As from 1975, banks were allowed to set their lowest overdraft rates within the margins 2.5 – 3.5% above Bank rate. This continued until 1980 when interest rate controls were dropped. The deposit rate on the other hand had its first upper limits imposed in 1965. Although this restriction was dropped in 1970, it was re-introduced in 1972. It was maintained until 1980, when the deposit rates were fully liberalised. Table 6.1 shows the trends of selected real and nominal interest rates in South Africa during the period 1967-1980.

Table 6.1: Trends of Selected Interest Rates in South Africa Between 1969-80

Year	Nominal Discount Rate	Real Discount End-period	Nominal Treasury Bill Rate (TB)	Real Treasury Bill Rate (TB)	Nominal Deposit Rate	Real Deposit Rate	Nominal Lending Rate	Real Lending Rate
1969	5.50	3.40	4.61	2.51	-	-	8.00	5.90
1970	5.50	2.30	4.39	1.19	-	-	8.17	4.97
1971	6.50	2.65	5.38	1.53	-	-	8.83	4.98
1972	6.00	-1.41	5.30	-2.11	-	-	8.79	1.38
1973	3.78	-1.39	3.18	-1.99	-	-	8.00	2.83
1974	6.48	-3.36	5.43	-4.41	-	-	10.17	0.33
1975	7.42	-4.52	6.12	-5.82	-	-	11.79	-0.15
1976	8.28	-5.05	7.44	-5.89	-	-	12.25	-1.08
1977	8.41	-2.18	7.87	-2.72	8.00	-2.59	12.50	1.91
1978	7.87	-2.77	7.81	-2.83	7.67	-2.97	12.13	1.49
1979	4.70	-6.84	5.26	-6.28	6.00	-5.54	10.00	-1.54
1980	6.54	-6.39	4.65	-8.28	5.54	-7.39	9.50	-3.43

Source: Author's own computations from IFS Yearbook (1999).

– Data Not Available

As can be seen from the Table 6.1, the interest rate policies for the period 1969-1980 were virtually passive. The government maintained a policy of fixing interest rates, which often resulted in negative real interest rates. For example, the nominal Treasury bill rate was increased between 1970 and 1971, and between 1973 and 1977. The highest nominal Treasury bill rate recorded was 7.87% in 1977, while the lowest rate was 3.18%, recorded in 1973. Despite the increase in the nominal Treasury bill rate during 1970 to 1971 and 1973 to 1977, the real Treasury bill rate remained negative throughout the period, with the exception of 1971 when a real rate of 1.53% was recorded.

As in the case of the Treasury bill rate, the nominal discount rate remained constant at 5.50% in 1969 and 1970 before being increased by 1 percentage point to 6.50% in 1971. However, the rate was later systematically adjusted downward from 6.50% in 1971 to 6.00% in 1972 and 3.78% in 1973 before being increased again to 6.48% in 1974 and to 7.42% in 1975. By 1977, the nominal discount rate was at 8.41%. Although the rate was lowered to 7.87% in 1978 and to 4.70% in 1979, it was later adjusted upward to 6.54% in 1980. Despite the upward trend in the nominal discount rate between 1969 and 1971, 1973 and 1977, and 1979 and 1980, the real discount rate remained negative virtually throughout the period. This was mainly because of high and increasing inflation that prevailed during this period. A positive real discount rate was only recorded in 1971. Between 1972 and 1980, the real discount rate oscillated between -1.39% and -6.84%, with the lowest rate (-6.84%) being recorded in 1979.

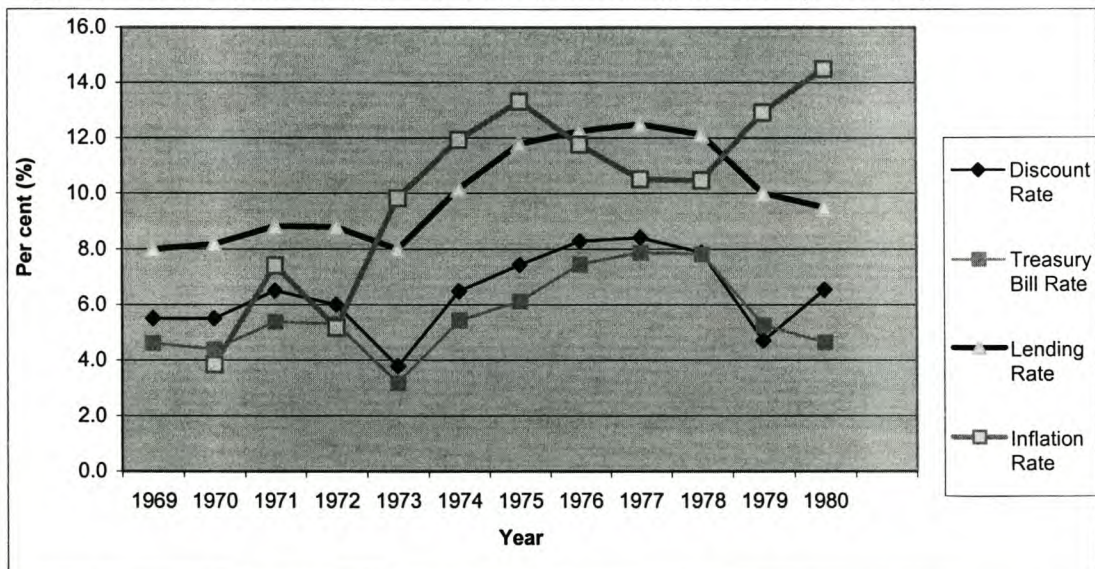
Like other rates, the nominal lending rates in South Africa were also kept fixed during this period by means of periodic adjustments. For example, the lending rate was adjusted upward from 8.00% in 1969 to 8.17% in 1970 and 8.83% in 1971 before being lowered to 8.79% in 1972 and 8.00% in 1973. Between 1973 and 1977, the rate was increased substantially with the highest level being recorded at 12.50% in 1977. However, between 1977 and 1980, the nominal lending rate was systematically lowered. By 1980, the nominal lending rate was 9.50%. Unlike other interest rates, the real lending rate remained positive in most cases during this period. This was due to the interest rate policies that prevailed during this periods. In most cases, the minimum and prime overdraft lending rates were set at about 2.5% above Bank rate, thereby prompting higher lending rates. The highest real lending rate recorded was 4.98% in 1971 while the lowest was -3.43% in 1980. The real lending rate showed an upward trend between 1972 and 1973 and between 1976 and 1977. A downward trend, however, was experienced between 1971 and 1972, 1973 and 1970, and 1977 and 1980. The main cause of this

extensive downward trend was high expected inflation during this period, which will be discussed later in this chapter.

Unfortunately, data on the deposit rate only dates as far back as 1977. However, its general trend did not deviate substantially from that of the lending rate. Between 1977 and 1980, the deposit rate was fixed and adjusted downward. The nominal rate was adjusted from 8.00% in 1977 to 6.00% in 1979 and finally 5.54% in 1980. Likewise, the real deposit rate declined sequentially from -2.59% in 1977 to -5.54% in 1979 and, finally, to -7.39% in 1980.

It is worth noting that the period between 1970 and 1980 recorded mainly a double-digit inflation rate, with a highest rate of about 14.5% in 1980. Given this high inflation rate, the maintenance of low and fixed interest rates with minimal adjustments rendered real interest rates negative in most cases. Figure 6.1 shows the trends of the selected interest rates *vis-à-vis* inflation rate during the period (1969-1980).

Figure 6.1: Trends of Interest Rates and Inflation Rate in South Africa (1969-1980)



Source: Computed from IFS Yearbook 1999

6.3.2 Interest Rates Behaviour After Interest Rate Liberalisation

Although interest rates were first liberalised in South Africa in 1980, real interest rates remained either negative or only slightly positive until 1985. This was largely due to the high inflationary pressures during the 1980s. Table 6.2 shows the trends of selected interest rates in South Africa during the period 1980 to 2001.

Table 6.2: Trends of selected Interest Rates in South Africa Between 1980-2001

Year	Nominal Discount Rate	Real Discount End-period	Nominal Treasury Bill Rate	Real Treasury Bill Rate	Nominal Deposit Rate	Real Deposit Rate	Nominal Lending Rate	Real Lending Rate
1980	6.54	-6.39	4.65	-8.28	5.54	-7.39	9.50	-3.43
1981	14.54	0.80	9.80	-3.94	8.19	-5.55	14.00	0.26
1982	14.35	-1.09	15.59	0.15	13.00	-2.44	19.33	3.89
1983	17.75	3.22	13.45	-1.08	13.71	-0.82	16.67	2.14
1984	20.75	8.06	19.33	6.64	18.29	5.60	22.33	9.64
1985	13.00	1.74	17.56	6.30	17.02	5.76	21.50	10.24
1986	9.50	-6.69	10.43	-5.76	10.98	-5.21	14.33	-1.86
1987	9.50	-9.32	8.71	-10.11	8.70	-10.12	12.50	-6.32
1988	14.50	-1.63	12.03	-4.10	13.54	-2.59	15.33	-0.80
1989	18.00	5.12	16.84	3.96	18.13	5.25	19.83	6.95
1990	18.00	3.23	17.80	3.03	18.86	4.09	21.00	6.23
1991	17.00	2.77	16.68	2.45	17.30	3.07	20.31	6.08
1992	14.00	-1.36	13.77	-1.59	13.78	-1.58	18.91	3.55
1993	12.00	-1.91	11.31	-2.60	11.50	-2.41	16.16	2.25
1994	13.00	3.26	10.93	1.19	11.11	1.37	15.58	5.84
1995	15.00	6.12	13.53	4.65	13.54	4.66	17.90	9.02
1996	17.00	8.30	15.04	6.34	14.91	6.21	19.52	10.82
1997	16.00	8.60	15.26	7.86	15.38	7.98	20.00	12.60
1998	19.32	10.75	16.53	7.96	16.50	7.93	21.79	13.22
1999	12.00	5.14	12.85	5.99	12.24	5.38	18.00	11.14
2000	12.00	6.78	10.11	4.89	9.20	3.98	14.50	9.28
2001	9.50	4.16	9.68	4.34	9.37	4.03	13.77	8.43

Source: Author's own computations from IFS Yearbook (2002)

As shown in the above table, the nominal rate of all interest rates increased rapidly following the financial liberalisation adopted in 1980. The nominal Treasury bill rate, for example, increased from 4.65% in 1980 to 19.33% in 1984 before declining to 17.56% in 1985. Although the nominal Treasury bill rate declined further in 1987 to 8.71%, the rate

later increased to 17.80% in 1990. Between 1991 and 1994 the rate showed a systematic declining trend. In 1995, the rate increased again to 13.53%, a trend, which continued until 1998. After 1999, the nominal Treasury bill rate followed a declining trend. While the nominal Treasury bill rate has somewhat shown a general upward trend, the real rate remained virtually negative during the first four years after liberalisation. The negative real Treasury bill rate can be attributed to the high inflation that continued to prevail even after liberalisation. Nevertheless, the rate showed a sustained increasing trend from – 8.28% in 1980 to 0.15% in 1982 before declining to –1.08% in 1983. Between 1984 and 1985, the real rate remained high and positive. In 1986, it declined to a negative value again, and in 1987 reached –10.12%. Between 1989 and 1991 the real rate returned to a positive level, oscillating between 2.45% and 3.96%. By 1992, the real rate was again negative, and in 1993 the rate was –2.60%. Between 1994 and 1998 the real Treasury bill rate showed a positive and upward trend with the highest rate of 7.96% being recorded in 1998.

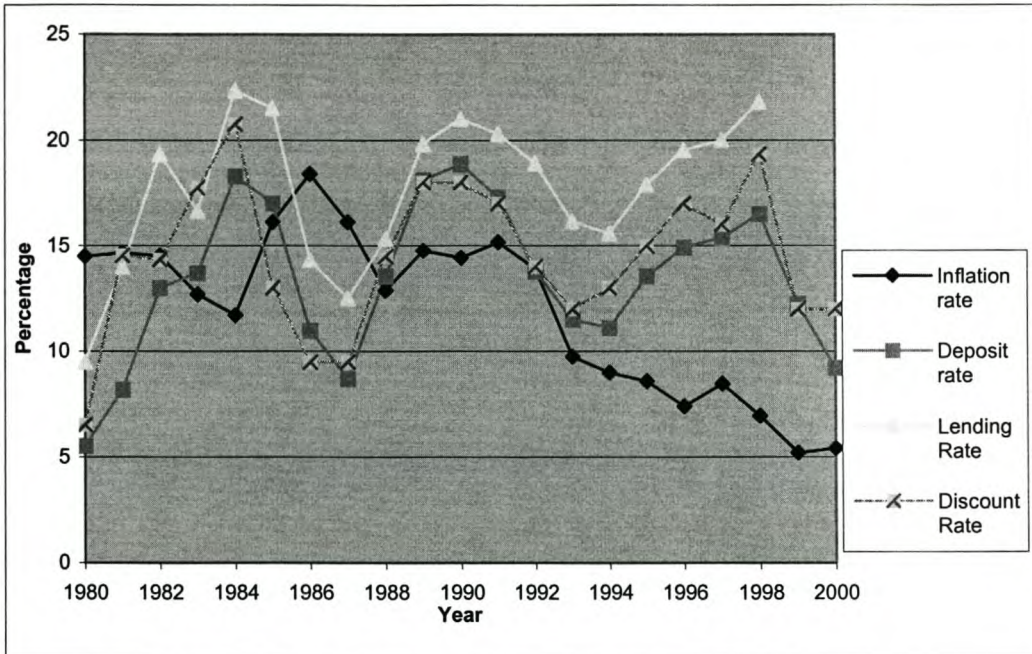
As in the case of the Treasury bill rate, the nominal discount rate showed a general upward trend between 1980 and 1984, with the highest rate of 20.75% being recorded in 1984. Although the rate declined between 1984 and 1987, it later picked up between 1987 and 1990. Thereafter, the rate declined between 1990 and 1993, increased between 1993-1996, and declined again in 1997. Since 1998, the nominal discount rate has exhibited a declining trend, with the lowest rate of 9.50% being recorded in 2001. Although the nominal discount rate showed an increasing trend in most cases during the period 1980-2001, the real discount rate, just like the Treasury bill rate, recorded some negative figures. For example, the real discount rate was negative in 1982, between 1986 and 1988, and between 1992 and 1993. The rest of the period, however, recorded positive real discount rates with the highest rate (10.75%) recorded in 1998.

As in the case of discount rate, the trends of lending and deposit rates followed the trend of the Treasury bill rate. The nominal lending rate, for example, increased from 9.50% in

1980 to 19.33% in 1982 before declining slightly to 16.67% in 1983. The rate later increased to 22.33% in 1984. Between 1985 and 1987 the nominal lending rate showed a declining trend. Although the rate improved between 1988 and 1990, it later declined between 1991 and 1994. Between 1995 and 1998 the rate showed an increasing trend. However, since 1998, the rate has been declining. It is worth noting that throughout the period between 1980 to 2001 the nominal lending rate maintained a double-digit level, with the exception of 1980 when a lending rate of 9.50% was recorded. Unlike other rates, the real lending rate remained positive in most cases, with the exception of the -3.43% recorded in 1980, -1.86% in 1986, -6.32% in 1987 and -0.80% in 1988. The highest real rate was 13.22%, recorded in 1998. This persistent positive real lending rate was attributed to the high and increasing nominal lending rate, which in most cases was above the prevailing inflation rate.

The general trend of the deposit rate did not deviate significantly from other interest rate trends. The nominal deposit rate increased immediately after the adoption of financial liberalisation, from 5.54% in 1980 to 18.29% in 1984 before declining between 1984 and 1987. Between 1988 and 1990, the nominal deposit rate increased again, with the highest rate (18.86%) recorded in 1990. However, this high deposit rate did not last for long. Between 1991 and 1994 the nominal deposit rate showed another declining trend. Although the rate increased between 1995 and 1998, the rate later declined in 2000. By 2001, the nominal deposit rate was 9.37%. Despite this high and generally increasing rate, the real deposit rate exhibited a number of negative values. The real deposit rate remained negative during the first four years after liberalisation, despite the rapid financial reforms adopted in 1980. The lowest rate was -10.12%, recorded in 1987. However, the rate thereafter remained positive in most cases, with the highest rate (7.98%) recorded in 1997. But since 1997, the rate has been evidencing a continuous declining trend. By 2001, for example, the real deposit rate was estimated at 4.03%. Figure 6.2 gives the trends of selected interest rates in South Africa *vis-à-vis* the inflation rate between 1980 and 2000.

Figure 6.2: Trends of Interest Rates and the Inflation Rate in South Africa (1980-2000)



Source: IFS Yearbook 2002; South African Reserve Bank Bulletin (various issues)

6.4 Financial Sector Reforms and Development in South Africa

South Africa has a well-developed and highly sophisticated financial sector, with a wide range of financial institutions and instruments. The South African financial sector consists of the South African Reserve Bank (which is the apex institution), commercial banks, life insurance companies, the Development Bank of Southern Africa, the Post Office savings bank, unit trusts, and micro-lenders. In addition there are investment firms that offer a broad array of financial services, and the Land Bank that provides finance mainly for agricultural investments. The sector also has a strong financial market. Both money and capital markets are active in South Africa.

This section attempts to review the development of financial sector in South Africa as well as the reforms, which have been undertaken to enhance the sector. Some of the

reforms discussed in this section include those of SARB, banking and non-banking financial institutions, financial markets, and the foreign exchange market.

6.4.1 Central Bank Reforms

Since the 1980s, SARB has implemented a number of institutional and monetary policy reforms in order to provide a conducive environment necessary for the successful implementation of financial liberalisation. However, before discussing these reforms, it is important to understand how SARB is structured.

SARB is managed by a board of 14 directors of whom half represent commerce, finance, industry and agriculture. The remaining seven, including the governor and the three deputy governors, are appointed by the government. The governor usually acts as the chair of the board, but the minister may also appoint another director to act in this capacity.

The South African Reserve Bank (SARB), together with the Treasury, forms the monetary authority in South Africa. The key role of the bank is to formulate and implement monetary policy and regulate the supply of money by influencing the cost of credit. The monetary policy in this case is guided by the objectives of the Reserve Bank.

Before the implementation of financial reforms in the 1980s, South Africa, like other developing countries, relied heavily on direct instruments of monetary policy. During this period, quantitative controls on interest rates, credit and foreign exchange were imposed. Until the 1980s, liquid asset requirements were used as the main form of monetary control. Like in other developing countries, the main motive for these controls was to channel cheap credit to sectors in the economy, which were believed to be at the forefront of development. The end result of this policy was financial disintermediation, which adversely affected the performance of the South African financial sector, particularly between 1976 and 1980.

Following the recommendations of the De Kock commission reports of 1978 and 1985, SARB shifted from direct to indirect monetary management. For example, interest rate controls were dropped in March 1980 and in August 1980, credit ceilings were withdrawn. During the same period, SARB shifted from using the liquid asset ratio system to a cash reserves-based system.

SARB currently relies entirely on indirect instruments of monetary policy – which include open market operations, reserve requirements, credit/rediscout facilities, among others.

Open market operations- SARB's active open market operations include transactions in government securities and in foreign exchange (using foreign exchange swaps). In March 1998, SARB introduced a new system of liquidity control called the "repurchase system" (or "repo" system). In a repurchase transaction system, the bank sells financial assets to SARB for cash with the undertaking that it will repurchase the assets in the future. The eligible securities include government bonds, Treasury bills, Reserve Bank bills and Land bank bills. In the repo system, unlike the previous system, SARB decides on the amount of liquidity to supply to the market (i.e. how much to lend out). This system was designed to allow the liquidity condition in the market to be reflected in short term interest rates. It also gives SARB more discretion with respect to liquidity provision, rather than automatically providing it².

Reserve Requirements - SARB determines what percentage of bank's holdings of its notes and subsidiary coins may be taken into account. This allows for the calculation of the minimum reserve balances required to be maintained by banks in their accounts with SARB. During the 1980s, the cash reserve requirement was very high. Thereafter, the reserve requirement varied considerably. In 1980 for example, the cash reserve

² See Wakeford (2002).

requirement was of 8% of short-term liabilities, interest-free with the Reserve Bank (excluding the additional requirements for banks). In 1992, the cash reserve requirement for all banks was set at 4% (short-term liabilities, interest-free). Although the reserve requirement was lowered to 1.0% in 1993, the minimum reserve balance was doubled to 2% in 1995. In 1998, the supplementary interest bearing cash reserve requirements of 1% of short-term liabilities was withdrawn.

Credit facilities – SARB actively uses a rediscount facility to effect interest rates and credit conditions. Overnight loans are also extended at the bank rate against quality collateral. In addition, SARB undertakes national and international transactions on behalf of the state and acts for the government in transactions with the International Monetary Fund (IMF). The bank advises on the floating of new government stock issues on the local money markets, and is involved in the buying and selling of government securities. SARB is the custodian of gold and other foreign exchange reserves.

SARB is empowered to exercise monetary and exchange rate policy independently, but with some certain degree of cooperation. According to the Constitution (Act, No. 108 of 1996): 'the South African Reserve Bank in pursuit of its primary objectives, must perform its functions independently and without fear, favour or prejudice, but there must be regular consultation between the bank and the cabinet member responsible for national financial matters'. Besides this, SARB is accountable to parliament, by way of a monthly statement of its assets and liabilities and annual report. On average, therefore, the SARB can be considered to have a moderate level of fiscal independence, complete instrument independence, but partial goal independence, as it is the Minister of Finance who determines the target range for inflation - in consultation with the governor of the Reserve Bank³.

³ See Nicoli et al (2002) for more details on the SARB's independence.

A detailed review of the South African inflation-targeting policy is presented below.

South African Reserve Bank and Inflation Targeting

South African monetary policy has the dual goals of controlling inflation on the domestic scene, and of maintaining a stable and appropriately valued exchange rate in the international context. Overall, SARB aims to achieve and maintain financial stability. In February 2000, an inflation-targeting framework was introduced as the anchor of monetary policy. The adoption of this target formally entrusted a single ultimate monetary policy objective to the Bank, namely, price stability⁴.

Inflation-targeting is a monetary policy regime, characterised by the public announcement of official target ranges or quantitative targets for inflation rate at one or more time horizons⁵. Inflation-targeting encompasses five main elements (Mishkin, 2000):

- i) the public announcement of medium-term numerical targets for inflation;
- ii) an institutional commitment to price stability as the primary goal of monetary policy, to which other goals are subordinate;
- iii) an information inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used for deciding the setting of policy instruments;
- iv) increased transparency of the monetary policy strategy through communication with the public about the plans, objectives and decisions of the monetary authorities; and

⁴ See SARB (2002).

⁵ See Tutar (2002).

- v) increased accountability of the central bank for attaining its inflation objectives.

There are three pre-requisites for inflation-targeting. The first prerequisite is central bank independence, the second is an exclusive inflation target, and the third is the existence of a stable and predictable relationship between monetary policy instruments and inflation.

The proponents of inflation-targeting argue that such approach helps to reduce inflation by: i) keeping the public informed about future inflation trends; ii) providing an anchor for inflation expectation; iii) increasing stability in nominal interest rates; iv) reducing inflation expectations by reorienting them towards the future; v) increasing transparency of monetary policy; vi) improving the accountability of the monetary authorities; vii) reducing the degree of money illusion in the economy; and viii) providing stability in the value of money, which enhances growth prospects.

In countries where inflation-targeting has been adopted, there are flexible mechanisms built-in. Many have adopted a price index that excludes some of the most volatile components such as food prices and energy costs. The rationale behind this flexibility is that supply shocks can shift the price level without altering the underlying inflation rate. The inflation target can be set in a band (e.g 3-6%) or as a point target (e.g. 3%). The decision to choose a point or a target range hinges on a trade-off between simplicity on the one hand and flexibility to cope with exogenous shocks on the other (See Alweendo, 2000; Wakeford, 2002).

In South Africa, inflation-targeting move was made in order to improve the coordination between monetary policy and other macroeconomic policies, as well as to make monetary policy more transparent and accountable. The target price index chosen was CPI (Consumer Price Index), excluding mortgage interest. The CPI measure of inflation was chosen to ensure a wide coverage of consumer items, but without the mortgage interest cost (South African Reserve Bank Monetary Policy Forum, April/May 2003).

The responsibility for meeting this target is delegated to the Reserve Bank's Monetary Policy Committee, which is comprised of the Reserve Bank officials. The committee is given the independent authority to set interest rates to meet the target. SARB's committee (MPC) is comprised of the governor, deputy governors and some senior bank officials.

Under this framework, the Monetary Policy Committee was given the task of achieving an average rate of increase in the overall CPI of between 3% and 6% for the year 2002. In 2002/3 South Africa announced that the target for 2003 will remain at between 3% and 6% while the target in the following two years will be narrowed somewhat to between 3 and 5% (Wakeford, 2002).

Notwithstanding the progress South Africa has had with the implementation of inflation-targeting, the policy has faced a number of challenges. These include, most prominently, practical difficulties in implementation, possible conflict with broader economic and social objectives, and socio-political opposition (Wakeford, 2002). Specifically, the following problems are encountered in South Africa:

- i) Due to the uncertain effects of monetary policy and exogenous (unforeseen) inflationary shocks, it may not be possible for SARB to control inflation precisely.
- ii) There are substantial and variable time lags between the emergence of inflationary pressures, the implementation of corrective measures and the effect of those measures on the inflation rate itself.
- iii) Inflation targeting may lead to a neglect of other important considerations such as economic growth and unemployment. This is supported by the fact

that many scholars still believe in the existence of a trade-off between inflation and unemployment, at least in the short-run.

- iv) Finally, socio-political opposition can also make achievement of the inflation-targeting difficult. For this reason, it may be difficult for SARB to convince all stakeholders in country of the importance of inflation-targeting.

6.4.2 Banking Sector Reforms and Development in South Africa

The South African banking sector is well developed and has seen major reforms since the onset of financial liberalisation in South Africa. However, before examining some the recent reforms, which have taken place in the sector, it is necessary to look at how the sector has developed over the years and, at the same time, how it is structured.

The first Currency and Banking Act in South Africa was enforced in 1920 (Act, No. 31 of 1920). This Act defined banks as companies receiving or accepting deposits of money, subject to withdrawal by cheque, draft or order. However, in 1942, another Act, the Banking Act of 1942, was passed. This Act gave banks a broader definition. It classified banks into four kinds of institutions, namely a commercial bank, a people's bank, a loan bank and a deposit-receiving institution. A people's bank was defined as "an association established for the purpose of promoting thrift among its members and of making loans to its members". A loan bank, on the other hand, was defined as "a person other than a people's bank, who carries on the business of accepting deposits of money and of granting small loans". A deposit-receiving institution, however, was simply seen as a residual, i.e. a person accepting deposits, but not being a commercial bank or a people's bank or a loan bank.

In 1965, all classes of banking institutions except discount houses were subjected to the same financial requirements under the Bank Act, No. 23 of 1965. Moreover, a new classification of banking institutions was introduced, namely commercial, savings, hire-

purchase and general banks, based on the relative importance of the banking business conducted. The rapid development and diversification of banking services offered by banks during the 1970s made the classification of banking institutions more difficult. For instance, the difference between hire-purchase, savings, and general banks became so vague that the Registrar, with the Financial Institutions Amendment Act, No. 103 of 1979, reclassified the first two financial institutions together with the last as general banks.

Since the 1980s, the distinction between the business of the various classes of financial institutions in South Africa has faded considerably. This is mainly due to several amalgamations and takeovers involving banks and building societies. Likewise, the discount houses moved closer to other banking institutions. From January 1991, building societies, commercial banks, discount houses, general banks and merchant banks were grouped together to form banking institutions, which were regulated by the Banks Act of 1990. This Act stipulates certain prudential requirements that should be complied with by the banks. These include requirements in respect of capital, cash reserves, liquid assets, and large exposures.

Between the mid-1960s and 1980s, private banking activities in South Africa and the development of the securities markets were restricted by the extensive use of direct monetary control instruments. Credit ceilings were increasingly implemented by the Reserve Bank to curtail the overspending of credit and to dampen inflation. During this period, high cash-reserve requirements were also instrumental in the development of 'grey' markets.

During the mid-1980s, after the implementation of the De Kock Commission recommendations, South African banks were faced with the increasing adherence to free market principles by the monetary authorities. Deregulation and rationalisation took place on a major scale, and most of the direct control instruments were no longer used by

the end of the 1980s. The banks' previously high cash-reserve and liquid-asset requirements were also reduced. The cash-reserve requirement was, however, subsequently increased in 1985 in order to tighten liquidity and to restrain the high level of credit extension. Several banks were registered and competition intensified, both among banks and between banks and other financial service providers. As a result, the assets held in the banking sector expanded rapidly. Profit margins were significantly reduced towards the end of the 1980s when intensified competition coincided with a relatively tight monetary policy. Consequently, the industry consolidated and rationalised, and several institutions merged with other banks. Considerable costs were incurred in connection with this rationalisation, and a large amount of non-performing debt was written off or provided for because of the recession between 1989 and 1993.

By the 1990s, nearly all the building societies were transformed from mutual societies into banking institutions and, later, merged into larger banking groups. By the mid-1990s, more than 95% of the total assets of banks were held by only four banking groups, namely the Amalgamated Banks of South Africa (ABSA), Standard Bank, First National Bank and Nedbank. The remaining 5% of the banks' assets were, however, spread among some 27 local banks, 9 foreign controlled banks, and a few branches of foreign banks as well as some mutual banks.

Although the policy of the South African authorities for many years was to ban the entry of new foreign banks into the country, this policy was reversed during the financial liberalisation era by the Deposit-taking Institutions Act of 1990. During this period, the shareholding restrictions on foreign banks operating in South Africa were removed. In addition, other restrictions on the entry of new foreign banks were lifted (Falkena et al, 1995; and SA Financial Sector Forum).

South Africa also adheres to the capital adequacy guidelines for banks as propagated by the Bank of International Settlements in January 1995. In 1999, the Money Laundering

Control Bill was introduced. This bill was expected to bring South Africa's financial institutions in line with international practices. By the year 2000, there were about 13 branches of foreign banks out of the total 60 banks that were recorded in South Africa. In addition, about 57 foreign banks had authorised representative offices in South Africa during the same period⁶.

6.4.3 Other Financial Intermediaries in South Africa

Apart from SARB and the commercial banks, there are other financial institutions, which offer a broad array of financial services in South Africa. These include investment firms, insurance companies, the Land Bank, unit trusts and micro-lending institutions, among others. Each of these will be discussed in more detail below, with the complex micro-lending sector receiving the most attention.

Land Bank: The Land Bank provides finance mainly for agricultural investments. The bank provides a full range of retail and wholesale financial services for farmers and agribusiness at competitive rates available in the agricultural sector. In 1998, the bank provided a total of 11843 loans worth R3.39 billion to commercial farmers and achieved a net surplus of R370 million.

The Development Bank of Southern Africa (DBSA): The Development Bank of Southern Africa (DBSA) was established in 1983 in order to support economic development in Southern Africa. According to the Southern Africa Act of parliament (Act 13 of 1997), the primary purpose of the DBSA is to promote economic development and growth, human resource development and institutional capacity-building by mobilising financial and other resources from the private and public sectors, both locally and internationally. Membership of the bank is open to independent Southern African states or, through associate membership, to countries outside Southern Africa.

⁶ For more details on the historical development of banking in South Africa, see Falkena et al, 1995; and SA Financial Sector Forum.

Insurance Industry: Insurance services in South Africa can be broadly divided into short-term and long-term insurance services. Short-term insurance is primarily concerned with risk assessment. Their contracts usually run from year to year and can be cancelled by either party. Long-term insurance industry on the other hand consists of life, assistance (which includes industrial and funeral), sinking fund and disability insurance.

Unit Trusts: Within the South African context, unit trusts are considered as investment vehicles providing a means of participation in the equity market, the bond market and the money market for investors who may not have the time, the money or the expertise to successfully effect investments in those markets in their own capacity. In 2000, about 31 management companies managed the assets of 269 separate unit trusts (South Africa Yearbook, 2000).

The Post Office Savings Bank: The first Post Office Savings Bank was established in October 1822. In 1993, the Post Office Savings Bank was renamed Post Bank, and took on a new image and a keen focus on becoming important player in the provision of banking facilities to the previously un-banked communities in South Africa. Post Bank has been a division of South African Post Office Limited, whose sole owner is the state, represented by the ministry for communication. At the end of 1996, there were 2194 Post Offices and other outlets at which savings bank business may be conducted (SA Financial Sector Forum, 1997).

Micro -lending in South Africa: Although micro-lending has existed for years, the official options available to people wanting access to small amounts of bank credit were very few before 1992. During this period, banks did not offer micro-credit services, and, as a result, borrowers had to resort to pawnbrokers or operators in the informal sector, e.g. the mashonisas or other informal systems such as the stokvels, burial societies and Credit Associations (ROSCAs). The rules governing the provisions of micro-credit

evolved in 1992. It then became legal to extend loans at rates greater than those capped by the Usury Act, and, as a result, two separate programmes expanded their operation in South Africa. These programmes are manifested as independent cash loan operators making one-month loans and term lenders who base their payments on payroll deductions. Both facilities grew extensively between 1992 and 1999.

The micro-lending industry has grown steadily in terms of value of loans outstanding over the past decade as new large players entered the market. However, the introduction of new regulations in June 1999 forced smaller, and less efficient operators to close their businesses, consolidate their assets, or drop out of the formal market into the informal and unregulated market.

To date there are three segments of micro-lenders in South Africa. The first segment is known as the formal micro-lenders. These are registered firms, which include enterprise lenders, developmental lenders and the large short-term lenders, among others. The second segment is known as the semi-formal moneylenders, which include small, unregistered moneylenders and pawnbrokers, who are not formally included in money-lending statistics. The third segment consists of purely informal moneylenders such as the township money-lenders (mashonisas) and skokvels, burial societies, and Rotating Savings and Credit Associations (ROSCAs).

6.4.4 Financial Market Reforms and Development in South Africa

By the standards of emerging markets, South Africa has a well-established and relatively sophisticated financial market. Financial markets in South Africa can be conveniently split into two broad markets: the money market and the bond market. In South Africa, like other countries, the money market is broadly defined as one that issues and trades in investments with a maximum tenor of only one year. The bond market, on the other hand, issues and trades in long-term securities. Both primary and secondary markets exist in South Africa. SARB conducts weekly auctions of Treasury bills, other government

securities, and occasionally central bank bills. Money market instruments in South Africa include Treasury bills, government bonds; negotiable certificates of deposits and repurchase agreements, among others.

The South African capital market is robust, liquid and well developed. The Johannesburg Stock Exchange (JSE), formed in 1887 and a member of the Federation of International Stock Exchanges since 1963, is, in terms of market capitalisation, one of the largest stock exchanges in the world. It provides market-making through a new screen-based trading system that replaced the old “open outcry” system. Already South African securities are traded simultaneously in Johannesburg, London, New York, Frankfurt and Zurich.

The stock exchange provides a market where securities can be freely traded under a regulated procedure. It does not only, therefore, channel funds into the economy, but also provides investors with returns on investments in the form of dividends. JSE is included in the Morgan Stanley Index and the International Finance Corporation (IFC) Emerging markets indices. It has also been a key role-player in the African Stock Exchanges Association since its formation in 1993. The admission of limited liability, corporate membership, dual capacity trading, negotiable brokerage and the automation of the trading system and other modern innovations have led to increased turnover and more competitive rates and services for investors.

In 1990, the South African Futures Exchange (SAFEX) was also established. SAFEX trades in equity futures contracts, options on equity futures and a host of other futures contracts. SAFEX consists of two divisions. The first is the financial markets division, and covers the equity and interest rate futures and options markets. The second is the agricultural markets division, and covers soft commodities futures and options on maize, sunflower and wheat. In 1996, more than four million futures contracts, valued at US \$ 62 billion, were traded and, in 1999, SAFEX moved from being the 22nd largest volume exchange to being the 18th in the world.

The Bond Exchange of South Africa (BESA) was also licensed to trade in 1996. The exchange was licensed as an exchange under the Financial Markets Control Act, 1989 (Act, No. 55 of 1989). BESA was registered as an exchange for the listing, trading and settlement of interest bearing, loan stock or debt securities. In 1996/97, the same year it was registered, more than 430,000 stocks with a nominal value in excess of US \$ 704 billion changed hands in BESA (See Investment South Africa). By 2001, the Bond exchange enjoyed an annual liquidity of more than 38 times the market capitalisation. This made it one of the most liquid emerging bond markets in the world (See Investment South Africa; South African Year Book 2001).

For more than a century the securities stock industry was highly regulated through practices that were enforced by the JSE. The JSE was conventionally based on a strict 'single-capacity' rule. Member firms were either brokers or principals in securities trading (e.g. equities and bonds) but could not be both simultaneously. Membership was also limited to South African citizens with unlimited liability. Banks as limited liability companies were therefore excluded from membership. However, in November 1995, structural changes were imposed on the JSE that resulted in a 'Big-Bang' in 1996. During this period the following changes took place:

- i) The market for trading equities was separated from the bond market;
- ii) An electronic trading system replaced the traditional open-floor out-cry system;
- iii) Corporate and non-residents were allowed for the first time to become broker members of the exchanges; and

- iv) Provision was made for negotiated commissions and principal versus broking trade by members of the Exchange, among others.

Currently, the Stock Exchanges Control Act regulates the operations of the JSE (now named the JSE Securities Exchange), and the Financial Markets Control Act regulates the activities of both BESA and SAFEX. These exchanges not only supervise trade in financial instruments – such as listed equities and corporate debentures and options on these (JSE); bonds and options on bonds (BESA); and futures and options contracts on these futures (SAFEX) – but also prescribe minimum listing requirements for these instruments. In this way, the issuance of equities, debentures and bonds is regulated by both general and specific legislation.

In 1997, money market funds as a competitive alternative to bank deposits was introduced. These funds are managed as a sub-division of the unit trust industry and are today an important section of the market. However, it is worth noting that the competition between Banks and securities markets is not yet on a level playing field, owing to a range of restrictions on the issue of commercial paper and corporate bonds (Felkana et al 2001). For instance, commercial papers obtaining operating capital may only be issued by a listed company with net assets exceeding R100 million. In addition, commercial paper has to be issued in denomination of R1 million or more, unless – (i) the paper is listed on a recognised financial exchange; (ii) the paper is endorsed by a bank; (iii) the paper is issued for a period longer than five years; (iv) the paper is issued or backed by the government. Moreover, only the issuer or subsidiaries holding companies of the issuer may be the ultimate borrowers of the money obtained from the general public against the issue of commercial paper. These restrictions make it utterly impossible at present to use the securities market as a competitive alternative force for small business finance (For more details, see SA Financial Sector Forum, 1997; South Africa Yearbook, 1993; 1999; 2000; Felkana et al 2001).

6.5 Foreign Exchange Reforms

South Africa, like other sub-Saharan African countries, maintained a fixed exchange rate system during the 1960s and 1970s. During this period, the exchange rate was determined by linking the rand's value to the sterling pound. However, since the collapse of IMF fixed exchange rates system, South Africa has implemented a variety of exchange rate systems. Initially, the rand was linked to the British Pound, but in October 1972 the pound was replaced by the US dollar after the pound had been allowed to float in June 1972. During this period, two upward adjustments in the value of the rand in terms of the US dollar were made in February 1973 and June 1973. Between 1973 and 1974, sharp fluctuations in the US dollar in terms of other currencies created similar fluctuations in the value of rand.

In June 1974, South Africa abandoned the rand / dollar link in favour of independent managed floating. This system allowed the Reserve Bank to determine the value of rand from time to time on the basis of an average / weighted value of the rand against other currencies. However, in June 1975, the government abandoned the independent managed floating system and returned to a rand / dollar fixed exchange rate system. However, due to the appreciation of the US dollar (which led to the appreciation of the rand), the South Africa balance of payments worsened thereby making the rand fixed exchange rate level almost impossible to maintain. This therefore forced the government to devalue the rand by 17.9% against the dollar in September 1975-a rate, which was retained until 1979 (See McCarthy, 1983).

In 1979 a two-tier exchange rate was established, namely the commercial rand and the free-floating rand. The commercial rand was the official exchange rate, which was determined through a controlled float. This rate was applicable to foreign trade, authorised capital transfers and current payments, including remittance of dividend and interest payments. The free-floating financial rand, on the other hand, was applicable to non-residents' financial transactions, including foreign direct investment (FDI),

repatriation of capital and profits, and outward capital transfers by residents and emigrants. This arrangement is quite efficient in dealing with capital inflows or outflows since the financial exchange rate is free to fully respond to fluctuations without affecting, at least in principle, the commercial exchange rate.

In 1983, the commercial rand and the free-floating financial rand were unified to a controlled float of an effective rand, and the average exchange rate of the rand against the US dollar was maintained at $\text{US\$1} = \text{R1.1141}$. However, the dual exchange rate system was reintroduced again in 1985, when South Africa was faced with large-scale capital outflows. As in the period 1979 to 1983, the financial rand was for foreign investment flows and outflows, while the commercial rand was for all other transactions. Throughout the 1990s, SARB had substantial control over foreign currencies in South Africa. In addition, the bank was then the sole marketing agent for gold, which then accounted for about 30% of export earnings. This provided SARB with wide latitude in terms of influencing exchange rates in the short-term.

In 1995, the dual rates were finally unified in a 'managed float' and the average exchange rate against the US dollar was $\text{US\$1} = \text{R3.6271}$. However, in 1996 SARB intervened heavily in the spot and forward exchange markets in order to contract the pressure on the rand as a result of past rapid monetary expansion and speculative capital out-flows. With a tighter monetary stance and the expected strengthening of the rand in 1997, SARB opted for a reduction of commitments in the net open forward position (NOFP), while maintaining stability in the real effective exchange rate.

Currently, exchange rate policy in South Africa reflects the view that the exchange rate of the rand can be best protected through consistent application of anti-inflation policies, which brings stability to the average value of the rand against the currencies of South Africa's trading partners. So far, the monetary authorities in South Africa have not attempted to fix a specified exchange rate of the rand. It is assumed that the variables that

affect the South African balance of payments are continuously in influx, and hence require a flexible rate.⁷

South Africa also participates in the common monetary area (CMA) with Lesotho, Namibia, and Swaziland. Banknotes issued in Lesotho, Namibia and Swaziland are freely convertible into rand at par. The rand is a legal tender in Lesotho and Namibia, but not in Swaziland. However, the currencies of these three countries are not legal tender in South Africa. Payments within the CMA are unrestricted. All countries outside the CMA constitute non-resident areas. Settlement by CMA residents with non-resident areas may be made in rand to non-resident accounts in any foreign currency, except the currencies of Lesotho, Namibia, and Swaziland. Likewise, settlements to CMA residents with non-resident areas may be made in rand from non-resident accounts and in any foreign currency, except the currencies of Lesotho, Namibia, and Swaziland.

The Treasury has delegated administration of foreign exchange control powers to SARB. The Bank has, in turn, further delegated these powers to authorised dealers. However, the Minister of Finance bears ultimate responsibility for foreign exchange control policy. SARB is co-responsible for foreign exchange policy formulation (South Africa Yearbook, 2002; Hassanali et al 1998).

6.6 Post-Financial Liberalisation Challenges

South Africa has witnessed many changes since the implementation of financial liberalisation in 1980. Unfortunately, the experience of South Africa with financial liberalisation has been at best indeterminate and at times disappointing. Apart from high interest rates, South Africa has, like other SSA countries, to some extent suffered high inflation rates⁸, unstable exchange rates, wide interest rate spreads, as well as low

⁷Although the Reserve Bank may to some extent smooth out erratic movements, it cannot override the fundamental market perception (See Investment South Africa).

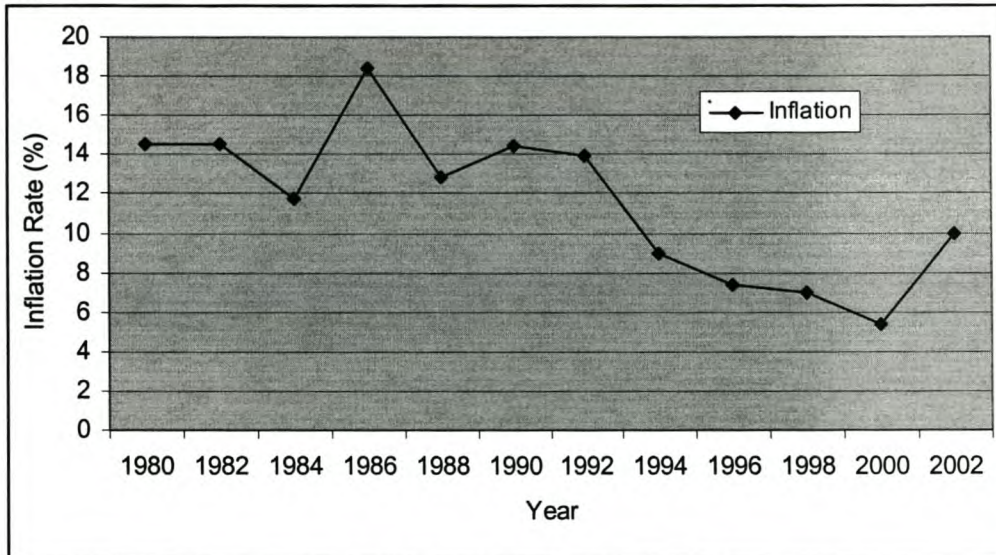
savings, investment, financial depth and economic growth following liberalisation. This section attempts to review some these challenges.

6.6.1 Post-Financial Liberalisation Inflation Trends

Since 1980, the inflation rate in South Africa remained a double digit. Single-digit inflation was only attained in 1993. Immediately after interest rate liberalization in 1980, the inflation rate increased from about 14.5% in 1980 to 14.67% in 1981. Although the rate systematically declined between 1981 and 1984, with the lowest rate, 11.71% being recorded in 1984, the rate later increased to 16.13% in 1985 and 18.40% in 1986 before decreasing to 16.13% in 1987 and 12.88% in 1988. The rate later increased to 14.77% in 1989 and later decreased to 14.42% in 1990 before increasing again to 15.16%. However, between 1993 and 2001 the inflation rate showed more or less a declining trend. In 1993 for example, South Africa recorded a single-digit inflation for the first time after about twenty years. Since then, the single-digit inflation rate has been maintained in South Africa, with the lowest rate 5.22% being recorded in 1999. Following the depreciation of the value of the rand towards the end of 2001 and steep increases in food and fuel prices, the inflation rate increased dramatically in 2002. For example, in November 2002 the inflation reached a recent highest rate of 12.7 percent. However, in 2003 the situation was contained and the inflation rate declined dramatically following the appreciation of the value of the rand against other major currencies, on the one hand, and SARB's monetary policy stance on fighting inflation on the other. Figure 6.3 shows the inflation rate trend between 1982 and 2002 as compared to 1980.

⁸ Since 1980, the inflation rate in South Africa remained a double digit. A single-digit inflation was only attained in 1993.

Figure 6.3: Inflation Rate Trend in South Africa between 1982 and 2002 as compared to 1980.



Source: Computed from IFS Statistical Year Book (2002); SRRB Bulletin (2003)

6.6.2 Post-Financial Liberalisation Exchange Rate Trends

Like in other sub-Saharan African countries, the post-financial liberalisation exchange rate in South Africa has been very erratic. For example, in 1996 the rand depreciated by about 15% in nominal terms against the US dollar. This was followed by a further depreciation of 7% in 1997. In December 2000, the exchange rate increased to US\$1 = R7.58 from US\$1 = R6.20 in June 1999. The value of the rand further dropped from US\$1 = R8.46 in September 2001 to US\$1 = R13.10 in December 2001. This shows that between September and December, the rand depreciated by about 55% against the dollar. Large fluctuations of a currency is not healthy for a country as it creates uncertainty about the future value of the currency, which makes investment and export planning extremely difficult. In an attempt to improve the functioning of the South African foreign exchange market, SARB recently shifted its focus to reducing its oversold forward book and to strengthening the official foreign exchange reserve position. By October 2003 for example, the balance on the oversold forward book stood at US\$2.3 billion from US\$6.9 billion in December 2002. Likewise, the official foreign exchange reserve position also

increased to US\$7.8 billion in October 2003. Table 6.1 shows the general trend of the rand during the period 1980 to 2001.

Table 6.3: Exchange Rate Trends in South Africa 1980-1998 (Rand per unit US Dollar)

YEAR	Average Exchange Rate	End-of-Period Exchange Rate
1980	0.7788	0.7454
1981	0.8775	0.9566
1982	1.0858	1.0763
1983	1.1141	1.2219
1984	1.4753	1.9849
1985	2.2287	2.5575
1986	2.2850	2.1834
1987	2.0360	1.9299
1988	2.2735	2.3777
1989	2.6227	2.5360
1990	2.5873	2.5625
1991	2.7613	2.7430
1992	2.8520	3.0530
1993	3.2677	3.3975
1994	3.5508	3.5435
1995	3.6271	3.6475
1996	4.2994	4.6825
1997	4.6080	4.8675
1998	5.5283	5.8600
1999	6.1095	6.150
2000	6.9398	7.570
2001	8.6091	13.10

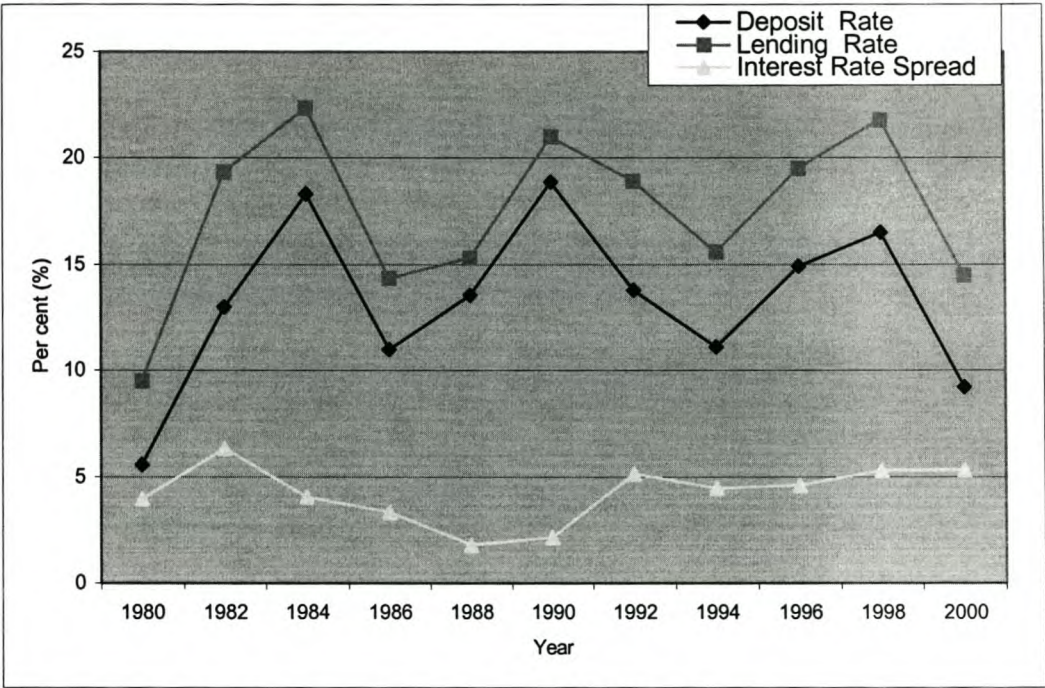
Source: IFS, Yearbook (2002); IMF Public Information Notice, 2001 May (No. 01/44); African Development Bank Selected Statistics, 2002.

6.6.3 Spreads between Deposit and Loan Rates

A part from high and increasing interest rates following financial liberalisation, many SSA countries have over the years suffered from wide and increasing spreads between loan rates and deposit rates. Although the South African interest rate spread is modest

compared to other SSA countries, the spread between lending and deposit rates widened considerably between 1990 and 1998 when compared to 1980. For example, in 1980, the interest rate spread between the lending and deposit rate was about 3.96%. Following the liberalisation of interest rates, the spread increased to about 5.81% in 1981 and 6.33% in 1982. Although the spread decreased to about 2.96% in 1983, it later increased to about 4.04% and 4.48% in 1984 and 1985 respectively. However, between 1987 and 1989 the interest rate spread declined dramatically, with the lowest 1.7% recorded in 1989. But in 1990, the spread increased again. The spread systematically increased from 2.14% in 1990 to 5.13% in 1992, before decreasing to 4.66% in 1993, 4.47% in 1994 and 4.36% in 1995. In 1996, the rate increased to 4.61% and since then interest rate spread showed an increasing trend until 1999. By 1999, the interest rate spread reached 5.76% - the highest since 1982. However, the spread later decreased significantly in 2000 and 2001. In 2000, the spread was about 5.3% and in 2001, it decreased further to about 4.4%. Figure 6.4 shows the spread between deposit and lending rates during 1982-2000 period as compared to 1980.

Figure 6.4: The Spread Between Lending and deposit rates between 1982 and 2000 as compared to 1980



Source: Compiled from International Financial Statistics Year Book (2002)

Interest Rate Spread = Lending Rate – Deposit Rate

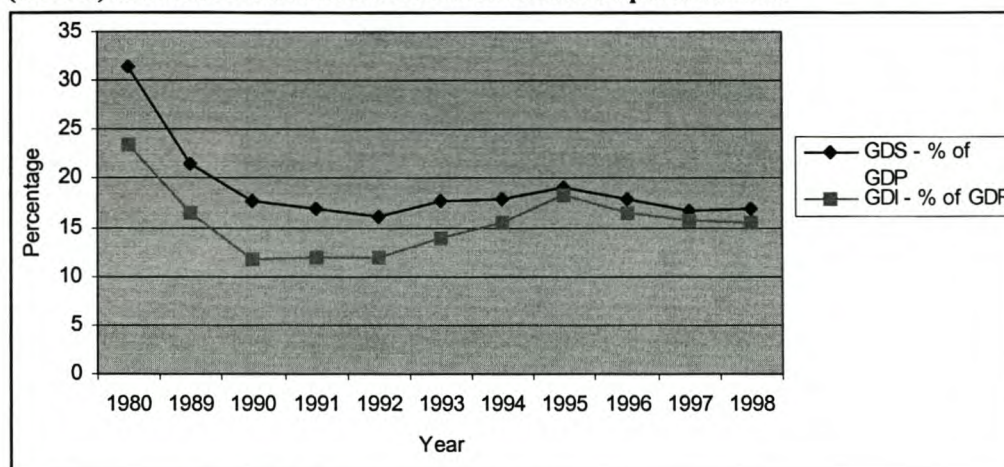
6.6.4 Post-Financial Liberalisation Savings and Investment Trends

One of the main objectives of financial liberalisation as prescribed by McKinnon (1973) and Shaw (1973) is to enhance savings and investment. However, the experience of South Africa is, like that of many SSA countries, of mixed results. Following the liberalisation of interest rates in 1980, the South African gross domestic saving ratio declined dramatically. Gross domestic savings, as a percentage of GDP, for example, decreased from about 31.5% in 1979 to 19.1% in 1995 before declining further to about 14.8% in 1999. During the same period, gross domestic investment, as a percentage of GDP, also decreased from 23.4% in 1980 to about 18.2% in 1995, and thereafter to 15.6% in 1998. It is therefore likely that this low investment rate could have been attributed to the prevailing low and declining savings rate.

Recent studies indicate that a country requires an aggregate savings rate of more than 20% of the GDP in order to sustain more than 3% growth rate in real income⁹. Although a record improvement was evident in the saving ratio in 2000 and 2001, household saving remained weak, whilst those of the corporate sector deteriorated somewhat (South African Reserve Bank, Annual Report 2001). Over the long-run, household saving relative to disposable income has declined almost incessantly from 5.5% in 1992 to 0.5% in 2000. Although the gross savings by general government, which had been negative since 1991, turned positive for the first time in 2000, and was estimated at 0.5% of GDP, gross saving by the corporate sector as a percentage of GDP weakened from 12.5% in 2000 to 12% in the first half of 2001. Figure 6.5 gives the trend of gross domestic savings and gross domestic investment in South Africa as a percentage of GDP between the period 1989 and 1998 as compared to 1980.

⁹ See also Prinsloo (2000).

Figure 6.5: Trends of Gross Domestic Saving (% GDP) and Gross Domestic Investment (%GDP) in South Africa Between 1989 and 1998 as compared to 1980.



Data Source: African Development Indicators, 2000.

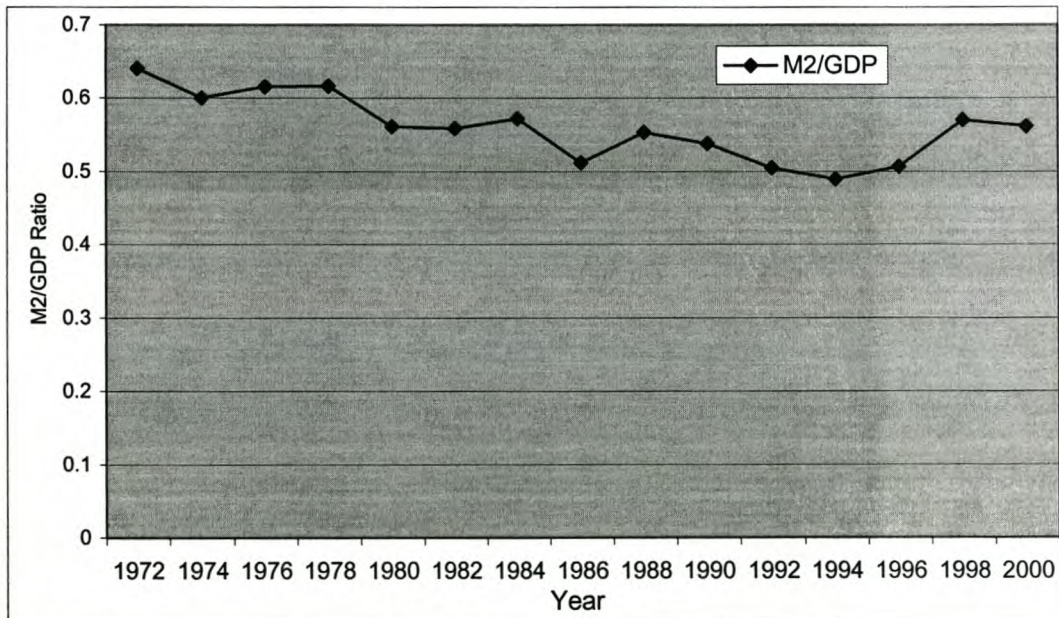
6.6.5 Financial Liberalisation, Financial Deepening and Economic Growth

Although the financial sector in South Africa is relatively deep when compared to Kenya, Tanzania and most of other SSA countries, the M_2/GDP ratio maintained after the liberalisation of interest rates in 1980 is slightly lower than the average M_2/GDP ratio maintained before the liberalisation. For example, during the period 1972 to 1980, the average M_2/GDP ratio was 0.613. Between 1981 and 1989, the average M_2/GDP decreased to 0.549. In 1993, the M_2/GDP ratio reached about 0.469, the lowest since 1973. However, since then the ratio increased phenomenally. The ratio was 0.490 in 1994 and 0.500 in 1995 before increasing further to about 0.540 in 1997 and 0.570 in 1998. In 1999, the M_2/GDP ratio increased to 0.579 and in 2001 the M_2/GDP ratio reached 0.597, the highest since 1980.

Although South African financial depth has improved considerably since 1993, economic growth has consistently shown a mixed trend since the 1980s. For example, during the period 1975 to 1984, the average annual percentage growth in GDP in South Africa was 2.4%, with the highest growth rate of about 9.2% being recorded in 1980. However, this rate decreased dramatically to an average of about 1.4% during the period 1985-1989

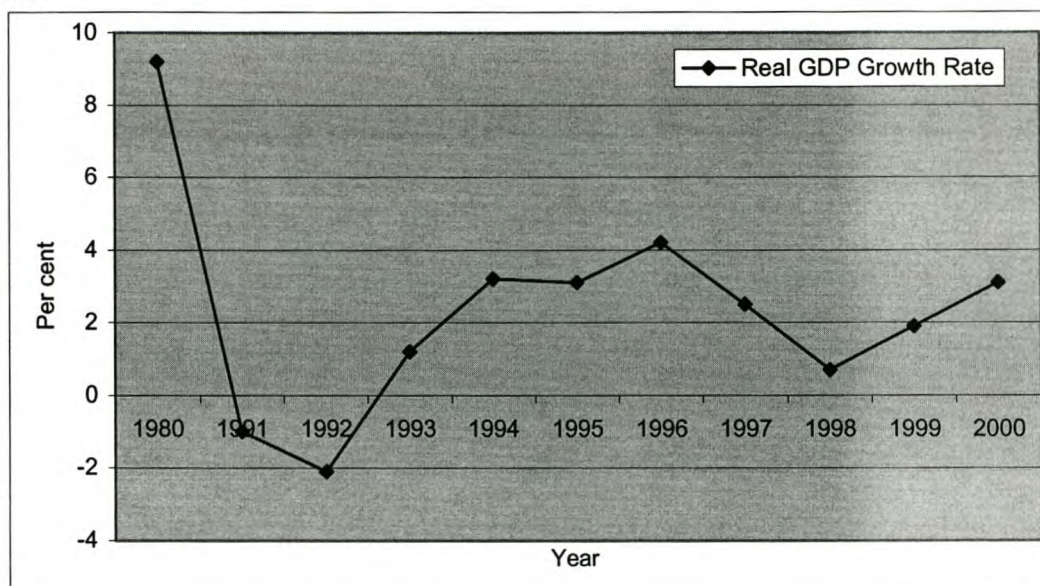
(See African Development Indicators 2002). This dramatic decline in economic growth was mainly attributed to trade and financial sanctions, political unrest, and debt crisis, which dumped prospects for substantial capital inflows. Between 1990 and 1992, the GDP growth rate remained negative and systematically declined to -2.1% in 1992. It was only in 1993 that the downward slide in the South African economy was reversed. Between 1993 and 1996, the GDP growth rate maintained a more or less increasing trend (with the exception of 1995). In 1994, the GDP growth rate significantly increased to about 3.2% from about 1.2% in 1993. Although the rate declined slightly to about 3.1% in 1995, the country recorded a record high GDP growth rate of 4.2% in 1996. However, the rate later declined in 1997 and 1998 to 2.5% and 0.7% respectively. Despite dwindling economic growth, which affected South Africa in the 1980s and 1990s, a modest recovery in economic growth was maintained in 1999 and 2000. Figure 6.6 shows the trend of M2/GDP between 1972 and 2000 while Figure 6.7 shows the trend of the annual growth of real GDP in South Africa during the period 1991 to 2000 as compared to 1980.

Figure 6.6 : The Trend of M2/GDP Ratio in South Africa between 1972-2000



Source: Compiled from International Financial Statistics Yearbook (2002).

Figure 6.7: The Trend of Annual Real GDP Growth Rate During 1991-2000 Period as Compared to 1980



Source: Compiled from African Development Indicators (2002)

6.7 Sequencing of Financial Policies in South Africa

This section gives a chronology of some of the financial policies, which have been implemented before financial liberalisation (1965-1979) and after financial liberalisation (1980-2001). Section 6.6.1 deals with pre-financial liberalisation policies, while section 6.6.2 surveys post-financial liberalisation policies.

6.7.1 Pre-Financial Liberalisation Policies

Between the 1960s and 1970s, the South African financial sector was severely repressed. Specifically, ceilings were imposed on bank interest rates; credit was allocated by administrative decision rather than market criteria; and flows of capital were strictly controlled. In this section, some of the financial repression policies, which were implemented between 1965 and 1979 are highlighted in tabular form. In this analysis, emphasis is given to policies such as interest rates ceilings, credit rationing, exchange rate policies, foreign exchange controls, reserve requirements, and other restrictive banking policies.

Financial Repression Regime in South Africa (1965–1979)

<i>Year</i>	<i>Financial Policies</i>
1965	<ul style="list-style-type: none"> • (March) The first upper limits on deposit rates payable on banks and building society was imposed. • Fixed exchange rate regime was in operation.
1966	<ul style="list-style-type: none"> • (December) A directed credit ceiling was reduced to 92.5%. • Fixed exchange rate regime remained in operation. • Minimum and prime overdraft lending rates were set by agreement with the SARB at 1.5% and 2% above Bank rate.
1967	<ul style="list-style-type: none"> • Minimum and prime overdraft lending rates were set at 2% and 2.5% above Bank rate. • (August) ‘Voluntary’ credit control was made mandatory by proclamation.
1968	<ul style="list-style-type: none"> • (May) Credit ceilings were extended to cover bank investment in private sector securities. • Minimum and prime overdraft lending rates remained at 2% and 2.5% above Bank rate. • Fixed exchange rate regime remained in operation.
1970	<ul style="list-style-type: none"> • (August) The upper limit imposed on deposit rate payable on bank and building society deposits was dropped. The government later decided to subsidise certain interest rates. • (August) Credit ceilings were extended to non-monetary banks to curb competition. • Fixed exchange rate regime continued to operate.

1970 (Continued)	Minimum and prime overdraft lending rates continue at 2% and 2.5% respectively above Bank rate.
1972	<ul style="list-style-type: none"> • (March) Upper limits on deposit rates payable on bank and building society deposits were reintroduced. • (September) Intention was announced to phase out credit ceilings. • (November) Credit ceilings were abolished. • Fixed exchange rate regime continued. • (November) 25% interest-bearing deposit with the National Finance Corporation (NFC) was abolished and replaced with a supplementary cash requirement, amounting to 10% of all short-term liabilities, to be held with the NFC.
1973	<ul style="list-style-type: none"> • (April) Interest bearing-deposit with the National Finance Corporation was lowered to 7%.
1975	<ul style="list-style-type: none"> • (July) Newly defined prime rate (the lowest rate at which a clearing bank lends on overdraft) was set by individual banks with the margins 2.5-3.5% above Bank rate, but changes to these rates were to be discussed first with SARB. • (September) The rand was devalued by 17.85% against the dollar, and the new rate was \$1.00 = R1.15.
1976	<ul style="list-style-type: none"> • Credit ceilings were re-imposed on bank credit to the private sector.
1977	<ul style="list-style-type: none"> • Further credit ceilings were tightened at various points.
1979	<ul style="list-style-type: none"> • (January) A two-tier exchange rate system was introduced. The official rate was renamed the commercial rand and put on a controlled float, applicable to foreign trade, authorised capital transfers and current payments including remittance of dividends and interest payments. Free-floating financial rand was made

1979 (Continued)	<p>and interest payments. Free-floating financial rand was made applicable to non-residents' financial transactions, including foreign direct investment, repatriation of capital and profits, and outward capital transfers by residents and emigrants.</p> <ul style="list-style-type: none"> • Credit ceilings were further tightened at various points.
------------------	--

Source: SARB Quarterly Bulletin (various issues); South Africa Yearbook (various issues); Nel, H.F (2000); Aron and Muellbauer (2000); Bandieri et al (2000); De Kork Commission (1985); JSE Bulletin (2001).

6.7.2 Post-Financial Liberalisation Policies

South Africa, like Kenya and Tanzania, adopted an approach to financial liberalisation that may be described as typical among developing countries. The country first pursued internal financial liberalisation before proceeding with external financial liberalisation. However, it is worth noting that South Africa, unlike Kenya and Tanzania, adopted a relatively more rapid approach to financial liberalisation. Financial liberalisation in South Africa was initiated in 1980 shortly after the De Kock commission reports of 1978 and 1985. During this period, a number of financial reforms were implemented almost simultaneously. For example, controls on interest rates were removed in March 1980. In August 1980, credit controls were also removed. Between 1983 and 1985, banks' liquidity ratios were reduced substantially.

In this section, some of the financial sector reforms, which have been implemented in South Africa since the onset of the liberalisation in 1980, are sequentially highlighted in tabular form. Although the main emphasis in this case is on the domestic financial liberalisation process, efforts have been made to extend this analysis to cover other forms of external financial liberalisation, including capital account liberalisation.

Sequencing of Financial Liberalisation in South Africa (1980 To Date)

Year	<i>Financial Reforms</i>
1980	<ul style="list-style-type: none"> • Rapid financial liberalisation was adopted. • (March) Deposit interest rate controls were dropped. • (April) The basic cash reserve requirement of 8% of short-term liabilities, interest-free with SARB, was maintained. Together with the basic requirement, the additional requirements for banks were based on the following classification: <p>Class A (total assets exceeding R800 million): 7% of short-term liabilities, interest-free with the Reserve Bank; 5% of medium-term liabilities, interest-bearing with the National Finance Corporation (NFC).</p> <p>Class B (total assets less than R800 million): 7% of short-term liabilities, interest-free with SARB; 3% of medium-term liabilities, interest-bearing with NFC.</p> • Informal constraints on mortgage rate were removed. • (August) Credit ceilings were abolished. • (September) Additional reserve requirements were increased as follows: <p>Class A: 10% of short-term liabilities, interest-free with SARB; 3% of medium-term liabilities, interest-free with SARB; 2% of medium-term liabilities, interest-bearing with NFC.</p> <p>Class B: 7% of short-term liabilities, interest-free with SARB; 3% of medium-term liabilities, interest-free with SARB; 3% of medium-term liabilities, interest-bearing with NFC.</p>
1981	<ul style="list-style-type: none"> • The Unit Trusts Control Act, 1981 (Act, No. 54 of 1981) was passed.

1982	<ul style="list-style-type: none"> • (March) Banks were released from the obligation of keeping prime rate within specific limits, although they still had to inform SARB of intended prime rate changes. • (March) Additional cash reserve requirements were reduced as follows: Class A: 4% of short-term liabilities, interest-free with SARB; 3% of medium-term liabilities, interest-free with SARB; 2% of medium-term liabilities, interest-bearing with NFC. Class B: 4% short-term liabilities, interest-free with SARB; 3% of medium-term liabilities, interest-free SARB; 3% medium-term liabilities, interest-bearing with NFC. • (September) Additional reserve requirements decreased as follows: • All banks: 2% medium-term liabilities, interest-free with SARB; 2% of medium-term liabilities, interest-bearing with NFC. • (September) All banks were treated equally. • A substantial number of new banks were allowed to commence business. • (September) Additional reserve requirements changed to basic requirements: <i>Basic Requirements:</i> 8% of short-term liabilities, interest-free with SARB; 2% of medium-term liabilities, interest-free with SARB; • 2% of medium-term liabilities, interest-bearing with NFC.
1984	<ul style="list-style-type: none"> • (March) The requirement for holding 2% of medium-term liabilities with the NFC was abolished.

1985	<ul style="list-style-type: none"> • (July) Banks' vault cash was included as part of required cash reserves. • (September) Two-tier system was re-established (commercial and financial rands). • Capital controls were tightened. • The Stock Exchanges Control Act, 1985 (Act, No. 1 of 1985) was passed.
1986	<ul style="list-style-type: none"> • The Building Society Act of 1986 was phased out. The Act had some tax benefits and other advantages, which gave building societies a monopoly in the mortgage market. • (April) The basic cash reserve requirements decreased as follows: 5% of short-term liabilities, interest-free; 2% of medium-term liabilities, interest-free.
1987	<ul style="list-style-type: none"> • The responsibility for banking supervision was transferred from the Department of Finance (National Treasury) to SARB.
1988	<ul style="list-style-type: none"> • Banking and Building Societies Amendment Acts were enacted in 1988, making the cash reserve and liquid asset requirements the same for both banks and building societies previously.
1989	<ul style="list-style-type: none"> • Financial Services Board was established. • The informal and formal bond markets were combined into the Bond Market Association (BMA).

1990	<ul style="list-style-type: none"> • Deposit-taking Institutions Act was passed; banks and building societies were brought under the same legislation. • (August) The South African Futures Exchange (SAFEX) was licensed as a financial exchange.
1991	<ul style="list-style-type: none"> • (January) Building societies, commercial banks, discount houses, general banks and merchant banks were grouped together to form banking institutions. • (February) The basic reserve requirement against short-term liabilities was lowered to 4%. • (February) The basic reserve requirement of 2% of medium-term liabilities, interest-free was abolished. • Risk-based capital requirements, in line with BIS directives, were introduced for banks.
1992	<ul style="list-style-type: none"> • Cash reserve requirement for all banks was set at 4% (short-term liabilities, interest-free). • (July) An additional requirement of 1% against short-term liabilities, kept in an interest-bearing account with SARB was introduced. • Usury Act, 1992 passed.
1993	<ul style="list-style-type: none"> • (April) The basic reserve requirement against short-term liabilities was lowered from 4% to 3%. • (April) 1% additional requirement against short-term liabilities, interest bearing with SARB was maintained. • (August) The reserve requirement was lowered from 1.5% to 1.0%.

1994	<ul style="list-style-type: none"> • The first corporate governance rules were published by the King Institute of Directors of South Africa (King Committee I).
1995	<ul style="list-style-type: none"> • (March) The minimum reserve requirement was doubled to 2%. • (March) The dual exchange rates were finally unified in a 'managed' float. • (March) All controls on the transactions of non-residents were abolished. • Capital controls on residents were relaxed.
1995 (Continued)	<ul style="list-style-type: none"> • (July) South African residents (institutional investors) were allowed to swap up to 5% of their total assets with foreign investors (i.e. insurance companies, pension funds and unit trusts). • (November) The 'Big Bang' on the Johannesburg Stock Exchange took place, heralding price competition, corporate membership, and dual-capacity trading. • (November) The requirements that all JSE stockbrokers be South African citizens was abolished.
1996	<ul style="list-style-type: none"> • (May) The formal bond market was passed from the JSE to the Bond Exchange of South Africa (BESA) and was licensed as a financial market in terms of the Financial Market Control Act. • (June) The limit on institutional investors for asset swaps with foreign investors was raised to 10%. • Forex access for corporations wishing to invest in neighbouring states was eased. • (October) Authorised foreign exchange dealers' foreign exchange cash limit was doubled to \$ 1.5 million.

1998	<ul style="list-style-type: none"> • (April) The Reserve Bank introduced one ratio of 2.5% on the total liabilities of banks. • The phasing-out of the tax privileges on building societies 'shares' began. During this period, building societies were immediately forced to start competing on a level playing field for deposit funding. • The JSE introduced an internet-based service, the Emerging Enterprise Zone (EEZ), to match seekers and providers of capital for small and medium business.
1999	<ul style="list-style-type: none"> • (January) The new Insider Trading Act was passed on recommendations made by the King Committee. • The Money Laundering Control Bill was introduced. The bill compels banks and other financial institutions to declare all transactions above a certain specific threshold, which brings them in line with international practices.
2000	<ul style="list-style-type: none"> • Exchange rate against the dollar depreciated to R7.58 compared to R2.50 in 1990. • The consolidated accounting rules for financial conglomerates were made mandatory for banking groups in 2000. • SARB empowered to determine what percentage of bank's holdings of SARB bank notes and subsidiary coin may be taken into account for the purpose of calculating the minimum reserve balances required to be maintained by banks in their reserve accounts with SARB.

Source: SARB Quarterly Bulletin (various issues); South Africa Yearbook (various issues); Nel, H.F (2000); Aron and Muellbauer (2000); Bandieri et al (2000); De Kock Commission (1985); JSE Bulletin (2001).

6.8 Concluding Remarks

In this chapter, the South African experience with financial liberalisation has been reviewed. The study has reviewed the development of the South African financial sector as well as the reforms, which have been undertaken to date to enhance the sector. The chapter has also highlighted some challenges facing South Africa's financial sector. Specifically, the chapter has attempted to assess whether there has been any evidence of increased savings, investment, financial depth and economic growth during the post financial reform period. Based on the findings of this study, the following conclusions can be drawn.

1) According to developing countries' standards, South Africa has a well-established and sophisticated financial sector. The South African financial sector is therefore more developed than the financial sectors in Kenya and Tanzania. By 2000, there were about 60 banks, out of which 13 were branches of foreign banks. In addition, about 57 foreign banks had authorised representative offices in South Africa during the same period. The South African capital market is robust, liquid and well-developed. The Johannesburg Stock Exchange, which was formed in 1887 is one of the largest stock exchanges in world by market capitalisation. The South African financial sector can be understood as consisting of the South African Reserve Bank, commercial banks, insurance companies, micro-lenders, Development Bank of Southern Africa, Land Bank, unit trusts, the Post Bank, and Johannesburg Stock Exchange, among others.

2) The South African Reserve Bank can be considered to be independent – even though there is some degree of consultation between the bank and the government. According to the Constitution (Act, No. 108 of 1996): “The South African Reserve Bank in pursuit of its primary objectives, must perform its functions independently and without fear, favour or prejudice, but there must be regular consultation between the bank and the cabinet member responsible for national financial matters”. The South African Reserve Bank

relies entirely on indirect instruments of monetary policy, namely open market operations, reserve requirements, and credit facilities, among others.

South Africa is one of the first sub-Saharan African countries to adopt and successfully implement an inflation-targeting policy. Inflation-targeting was implemented in February 2000. This move was made in order to improve the coordination between monetary policy and other macroeconomic policies, as well as to make monetary policy more transparent and accountable. South Africa committed itself to a CPI inflation target of 3-6% for 2002 and the target is expected to remain the same for 2002/2003.

3) In terms of sequencing of financial liberalisation, South Africa, like Kenya and Tanzania, adopted a more or less general approach prescribed for developing countries. The country first pursued internal financial liberalisation before proceeding with external financial liberalisation. However, unlike Kenya and Tanzania, South Africa adopted a rather rapid approach to financial liberalisation with reversal in some instances. For example, the credit ceilings were abolished in 1972, but were later re-introduced in 1976. Between 1977 and 1979, the ceilings were further tightened, before being abolished in 1980. Controls on interest rates were also withdrawn in 1980. During the same year, constraints on mortgage rate were also removed. More reforms were undertaken in the financial sector in 1982 and a substantial number of new banks were allowed to start operation in South Africa. However, in 1985 capital controls were tightened in response to capital flight following the worldwide imposition of economic sanctions. In 1995 the dual exchange rates were finally unified in a “managed float”. Regulations affecting transactions of non-residents were abolished, while those of residents were relaxed in 1995. During the same year, the ‘Big Bang’ on Johannesburg Stock Exchange (JSE) took place and the requirements that all stock brokers in JSE be South African citizens was abolished.

4) Although South Africa is considered to have one of the most developed and sophisticated financial systems in sub-Saharan Africa, its market share, as in the case of Kenya, is still dominated by only a few financial institutions. By the mid-1990s, for example, more than 95% of banks' total assets were held by only four banking groups, while the remaining 5% were spread among 27 local banks, nine foreign-controlled banks, and a few branches of foreign banks as well as some mutual banks.

5) The South African experience of financial liberalisation is, as in the case of Kenya, mixed, and whether financial liberalisation leads to increased savings, financial deepening, investment efficiency and economic growth remains an empirical issue. For example, inflation remained at a double-digit between 1980 and 1992 after financial liberalisation. Since 1993, inflation has been contained and a single digit has been maintained (with the exception of 2002 when inflation increase phenomenally due to the depreciation of the rand).

The exchange rate has been very erratic since the mid-1990s. The rand depreciated, on average, against the dollar from about 3.6271 in 1995 to 4.6080 in 1997 and thereafter to 6.9398 in 1999. By 2001, the average exchange rate reached about 8.6091. However, in 2003 the value of the rand appreciated significantly.

The spread between deposit and lending rates in South Africa is, however, modest when compared to those of Kenya and Tanzania. It should be noted, however, that the interest rate spread widened somewhat between 1990 and 1998 when compared to 1980.

Since the liberalisation of the financial sector, savings and investment have declined significantly in South Africa. For example, gross domestic savings, as a percentage of GDP, decreased from about 31.5% in 1979 to about 19.1% in 1995 before declining further to about 14.8% in 1999. During the same period, gross domestic investment, as a percentage of GDP, also decreased from about 23.4% in 1980 to about 18.2% in 1995,

and thereafter to about 15.6% in 1998. Although the saving ratio improved dramatically in 2000 and 2001, household savings remained weak, and those of the corporate sector deteriorated somewhat.

Although the financial sector in South Africa is relatively deep when compared to Kenya, Tanzania and most of other SSA countries, the M2/GDP ratio maintained after the liberalisation of interest rates is slightly lower than the average M2/GDP ratio maintained before the liberalisation. The M2/GDP ratio increased between 1980 and 1984; decreased between 1985 and 1986; increased between 1987 and 1989; and later decreased between 1992 and 1993. However, since 1994, the M2/GDP has been increasing steadily.

Likewise, the trend of economic growth in South Africa after reforms is mixed. During the period 1975 to 1984, the average annual percentage growth in GDP in South Africa was 2.4%, with the highest growth rate of about 9.2% being recorded in 1980. However, this rate decreased dramatically to an average of about 1.4% during the period 1985-1989. The rate systematically declined between 1990 and 1992, but later increased in 1993. Between 1993 and 1996, the GDP growth rate maintained a more or less increasing trend, with the exception of 1995. In 1997 the growth rate declined to about 2,5% from about 4.6% in 1996. The country recorded a modest recovery in economic growth between 1999 and 2000, when the real GDP growth rate increased dramatically.

CHAPTER 7

FINANCIAL LIBERALISATION IN TANZANIA

7. Introduction

This chapter is a review of issues related to financial liberalisation in Tanzania, and includes a discussion of how they affect the financial sector at large. Like the previous two chapters on Kenyan and South African financial liberalisation, this chapter is divided into seven sections. As in the previous chapters, in section one, an overview of financial liberalisation in Tanzania is presented. Section two is a review of Tanzanian interest rate liberalisation, and section three traces the behaviour of interest rates in Tanzania before and after financial liberalisation. Section four is focused on the development of the financial sector in Tanzania as well as on the reforms that have been undertaken in the sector to date. As in the previous chapters the reforms discussed in this section include those of the central bank, in the banking sector and in non-bank financial institutions, as well as those of the financial and foreign exchange markets. Section five presents some of the post-financial liberalisation challenges facing Tanzanian. These challenges relate to the spread between lending and deposit rates, exchange rate trends, credit allocation, savings and investment trends, and financial depth vis-a-vis economic growth. Section six is a chronological, tabular presentation of both domestic and external financial reforms in Tanzania since 1991. Some of the reforms highlighted in the analysis include the liberalisation of interest rates, directed credit, cash reserve requirements, liquidity asset requirements, competition in the financial sector and exchange rate reforms. Finally, concluding remarks are made in section seven.

7.1 The Origin of Financial Liberalisation in Tanzania

Immediately after independence, in 1967, Tanzania adopted the Arusha Declaration, which empowered the government to rationalise private financial institutions as a way of mobilising financial resources for allocation to the private sector for growth and poverty

alleviation. This policy was aimed at providing credit to the private sector in order to promote growth and make the country self-reliant (Ziorklui, 2001). However, given the repressive policies of the government, this did not succeed. With time, the implementation of the Arusha Declaration proved difficult, and it later became clear that the Arusha Declaration could not transform the economy of Tanzania into a self-reliant state.

By 1979, the economic distress in Tanzania was conspicuously visible. Some of the shortcomings that constrained the Tanzanian financial sector were:

- i) monopolistic and uncompetitive financial institutions;
- ii) pervasive government intervention in the financial system;
- iii) inadequate and ineffective resources mobilisation instrument and strategies;
- iv) large portfolio of non-performing loans within the banking sector;
- v) low and inadequate capital requirement of financial institutions;
- vi) weakness in management and accounting systems and policies;
- vii) loss of public confidence in the finance system;
- viii) the existence of institutional gaps in the financial system;
- ix) weaknesses in management and in accounting system and policies, and
- x) an inadequate and inefficient payments system (see Ziorklui, 2001).

In order to reinvigorate the depressed financial sector, the Tanzanian government undertook a number of financial reforms. The main aim of these reforms was to develop a strong financial sector that can mobilise and allocate financial resources to the private

sector for growth. Consequently, a comprehensive restructuring of the financial institutions was carried out. The Financial Sector Reform Commission's 1990 report showed that savings mobilisation declined continuously between 1979 and 1986. In addition, financial assets, which were equivalent to nearly 50% of GDP in 1979, had fallen to 28% of GDP in 1986. The domestic saving rate, which had peaked at 25% of GDP in 1977, fell to 8% in 1985. This led to the initiation of the following financial reforms:

- i) liberalisation of interest rates,
- ii) restructuring of existing formal financial institutions through write-offs of non-performing assets,
- iii) reforming the policy environment in which the existing institutions were operating,
- iv) promoting competition by encouraging the establishment of domestic and foreign-owned private banks, including joint ventures with Tanzanian interests,
- v) strengthening the Bank of Tanzania (BOT) prudential regulatory and supervisory roles, and
- vi) creating new instruments that would foster an efficient money market.

Aside from these financial sector reforms, new legislation was put in place in order to restructure the legal framework (Nyagetera, 1997)¹. The new legislation introduced since 1991 include the Banking and Financial Institutions Act 1991 and 1993, which repealed

¹ See also Ziorklui (2001).

and replaced the Banking Ordinance of 1960. This legislation provides for the licensing of banks and other financial institutions, capital adequacy requirements, central bank supervision, regulation of financial institutions and a deposit insurance fund. The legislation later culminated in the liberalisation of banking sector in 1992. The Treasury bills auction was also launched in August 1993.

The second legislation was the loans and advances realization Trust Act of 1991; which provides for acquisition of non-performing assets of financial institutions as well as a machinery for their recovery. The third legislation was the Foreign Exchange Act 1992, which provides for the elimination of exchange controls and for the establishment of a free foreign exchange market and foreign exchange bureaux. The Capital Markets and Securities Act (CMSA) of 1994 was the fourth significant legislative reform. This legislation provides for the establishment of the Capital Markets and Securities Authority. In addition, the Bank of Tanzania Act of 1995, which repealed and replaced the 1965 act was passed. On the government policy front, a number of measures were implemented. First, government intervention in the financial sector was eliminated. This policy was achieved by eliminating government administrative price setting in the financial sector. This therefore gave financial institutions greater autonomy in setting interest and exchange rates. Second, the administrative resource allocation mechanisms in the financial sector were dismantled. Likewise, restrictions on competition and free entry into the financial sector were also lifted. As a result, new commercial banks, merchant banks, bureaux de change, insurance companies, and other financial institutions and intermediaries have been licensed (Ziorklui, 2001).

Although Tanzania initially adopted a gradualist approach towards financial liberalisation, the country has since the 1990s successfully implemented substantial financial reforms. Its financial sector is consequently relatively strong compared to those of some African countries. For instance, interest rates are now fully liberalised, although at times still negative in real terms. The primary market has also been established. The

182 and 364 day Treasury bills are being auctioned on a regular basis, while 91-day central bank bills are also auctioned occasionally to mop up excess liquidity. All these auctions function relatively well. An inter-bank market exists, although it is very thin, and loans are mostly un-collateral. The 'repos' and 'reverse repos' are carried out informally. The country has also put in place the basic legal framework necessary to ensure a competitive, efficient, and sound financial system. A competitive and efficient banking system is already emerging. The new banks have been licensed, and the process of restructuring publicly owned banks is at an advanced stage. Banks have been operating in a relatively competitive environment, especially after the state owned National Bank of Commerce (NBC) was split in 1997. The country has recently attracted a number of private banks, non-bank financial institutions, and other financial institutions. Currently there are about 18 banks, 11 non-bank financial institutions, 80 foreign exchange bureaux, 11 insurance companies, and two state-run pension plans. The country has also a stock exchange (namely, the Dar-es-Salaam Stock exchange), which commenced operations in April 1998.

While significant progress has been made since the liberalisation efforts began in 1991, the country's financial sector remains weak. This is especially clear when it comes to lending. Credit growth in Tanzania, especially to the productive sectors, has been slow. The ratio of lending to deposits for example has declined considerably from almost 200% in 1991 to less than 35 % in 1998.

7.2 The Origin of Interest Rates Liberalisation in Tanzania

The implementation of interest rate policies in Tanzania can be divided into three periods. The first period is between 1961 and 1966. During this period, interest rate policy depended on what happened in the London financial markets. The second period spanned 1967 to 1985. This was the era of administratively fixed interest rates. The third

period, from 1986 to date, is the period of deregulated interest rate policy². The deregulation of interest rates in Tanzania was supported by the predominant view that the root cause of many macroeconomic imbalances such as the savings-investment gap in Tanzania, was mainly the interest rate policies of the past (Ndulu and Hyuha, 1989; Nyagetera, 1997; and Mduma, 1999).

Although the financial reform process in Tanzania started in the 1980s, full-fledged financial reforms commenced only in 1992. For example, it was only in July 1992 that BOT lifted its responsibility of setting interest rates (except for the maximum lending rate). Financial institutions were therefore free to set their deposit and lending rates (subject to the maximum lending rate of 31% set by BOT) and 12-month deposit rate above the inflation rate. However, in July 1993 the lending interest rate ceiling of 31% was abolished, and the requirement of positive real deposit rates was abolished in 1994 (Bank of Tanzania, 1998; Mduma, 1999). In 1993, BOT commenced Treasury bill auctions with 91-day bills. The Treasury bill auctions served as a tool for financing short-term government debt and as an instrument of liquidity management as well as a reference point for the determination of market interest rates. In September 1993, the 35-day Treasury bill was also introduced for Treasury bill auctions. In January 1994, the discount rate, the rate at which BOT accommodates commercial banks on a short-term basis, was increased from 27% to 50% per annum. Thereafter, the discount rate was adjusted bi-weekly, on the basis of the marginal yields of the 91-day Treasury bill auctions. In October 1994, computation of the discount rate was determined by the weighted average of T-bill auction yields for all maturities. The minimum interest rate on 12-month fixed deposits was abolished in 1994. Initially, the rate had to be positive in real terms.

² See Mduma (1999).

7.3 Interest Rates Behaviour Before and After Liberalisation

Interest rates behaviour in Tanzania, as in Kenya and South Africa, can be divided into two categories – namely, pre-reform and post-reform trends. As in Kenya and South Africa, the pre-reform period was characterised by low and, in most cases, negative interest rates in real terms. Following the liberalisation of interest rates in 1992 and 1993, nominal rates increased significantly, although real interest rates remained negative until the mid-1980s. Section 6.3.1 reviews pre-reform interest rates trends, while section 6.3.2 discusses the post-reform interest rate trends.

7.3.1 Interest Rates Behaviour Before Interest Rate Liberalisation (1961-1992)

Interest Rates Behaviour from 1961-1985

During the period between 1961 and- 1967, Tanzanian interest rate policy was largely controlled by the East African Currency Board (EACB) – a board, which was established in December 1919. The EACB was mainly concerned with the interest rates on government securities. There was no concern with interest rates charged by commercial banks. The emphasis at this time was on keeping the local Treasury bill rate at approximately 12.5% below the UK Treasury bills. The so-called ‘big three’ commercial banks in Tanzania tied their interest rates to money market rates in London. However, during this period the interest rate on saving deposits did not show any significant change. For example, the deposit rate decreased from 3.5% per annum in 1961 to 3% per annum in 1962, and remained unchanged until 1964. The interest rate later increased to 3.5% in 1965, which prevailed until 1966. The small variations in the deposit rate could be attributed to the cartel nature of commercial banks that operated in the country during this period³.

Following the Arusha Declaration in April 1967, interest rate policy was substantially changed. This marked the beginning of an era of administratively-fixed interest rates in

³ See Mduma (1999).

Tanzania. In 1969, for example, the government lowered the Treasury bill rate to 4.3% per annum from 4.6% in 1968, a rate that was maintained for 14 years. The rationale for this move was to lower the cost of government borrowing from the banking system. However, the rate was later adjusted upward to 5.00% in 1983 and 5.70% in 1985. Although the nominal Treasury bill rate remained more or less fixed during the period 1967 to 1985, the real rate remained virtually negative throughout this period, with the lowest rate (-26.95%) being recorded in 1981. The negative real interest rate is attributed to the high and persistent inflation that prevailed during this period.

As in the case of Treasury bills, Bank rate was administratively fixed throughout this period. The nominal Bank rate remained fixed at 5.00% between 1967 and 1977. The rate was later adjusted to 6.00% in 1979, a rate, which was maintained until 1986. Although the nominal rate remained fixed during this period, the real Bank rate followed a different trend. The rate remained negative between 1973 and 1985, with the lowest rate (-28.88%) being recorded in 1985.

The three-month commercial bank fixed deposit rate also remained fixed at 4% per annum over the period 1967 to 1984. It was then adjusted to 6% in 1985, which reflected an increase of only 2 percentage points in a period of about 20 years. However, the real deposit rate decreased from -3.33% in 1978 to -25.25% in 1981. Although the rate improved to -16.31% in 1982, it later declined to -24.88% in 1985. Likewise, nominal lending rates were kept fixed over long periods and followed similar trends. Specifically, the commercial lending rate was lowered from 7% per annum in 1967 to 6.5% in 1968 and thereafter remained unchanged until 1977. It was then adjusted upwards to 7.5% in 1978 and reached 11% in 1985. The real rate on the other hand, remained negative throughout this period. Table 7.1 shows the general trends of selected real nominal interest rates in Tanzania during the period between 1967 and 1985.

Table 7.1: Trends of Selected Interest Rates in Tanzania (1967-1985)

Year	Bank Rate	Real Bank Rate	Treasury Bills Rate	Real Treasury Rate	Deposit Rate	Real Deposit Rate	Lending Rate (Min)	Real Lending (Min)	Lending Rate (Max)	Real Lending Rate (Max)
1967	5.00	3.2	4.40	2.6	3.50	1.7	7.00	5.2	10.00	8.2
1968	5.00	0.4	4.60	0	3.50	-1.1	7.00	2.4	10.00	5.4
1969	5.00	1.9	4.30	1.2	3.50	0.4	6.50	3.4	10.00	6.9
1970	5.00	3.8	4.30	3.1	3.50	2.3	6.50	5.3	10.00	8.8
1971	5.00	3.6	4.30	2.9	3.50	2.1	6.50	5.1	10.00	8.6
1972	5.00	0.3	4.30	-0.9	3.50	-1.2	6.50	1.8	10.00	5.3
1973	5.00	-11.67	4.30	-12.37	4.00	-12.67	6.50	6.50	10.00	-6.67
1974	5.00	5.00	4.30	4.30	4.00	4.00	6.50	-22.07	10.50	10.50
1975	5.00	-23.57	4.30	-24.27	4.00	-24.57	6.50	-15.72	10.50	-18.07
1976	5.00	-17.22	4.30	-17.92	4.00	-18.22	6.50	-2.59	10.50	-11.72
1977	5.00	-4.09	4.30	-4.79	4.00	-5.09	6.50	-1.83	10.50	1.41
1978	6.00	-2.33	4.30	-4.03	5.00	-3.33	7.50	-0.19	11.50	3.17
1979	6.00	-1.69	4.30	-3.39	5.00	-2.69	7.50	-6.79	11.50	3.81
1980	6.00	-8.29	4.30	-9.99	5.00	-9.29	7.50	-23.75	11.50	-2.79
1981	6.00	-25.25	4.30	-26.95	6.00	-25.25	7.50	-16.31	12.00	-19.25
1982	6.00	-17.81	4.30	-19.51	7.50	-16.31	8.00	-18.92	12.50	-11.31
1983	6.00	-20.92	5.00	-21.92	7.50	-19.42	8.00	-22.30	9.50	-17.42
1984	6.00	-24.30	5.00	-25.30	7.50	-22.80	8.00	-26.88	9.50	-20.80
1985	6.00	-28.88	5.70	-29.18	10.00	-24.88	11.00	-21.76	16.00	-18.88

Source: Author's own computations from the Bank of Tanzania publications: Economic and Operation Report and Quarterly Economic Bulletin (various issues).

Interest Rates Behaviour During the (1986-1992) Period

Since 1986, there has been a reversal of interest rate policies. This is evidenced in the upward trend of interest rates recorded since 1986. Table 7.2 shows the trends of selected nominal and real interest rates in Tanzania during the period 1986 to 1992.

Table 7.2: Trends of Selected Interest Rates in Tanzania (1986-1992)

Year	Bank Rate	Real Bank Rate	Treasury Bill Rate	Real Treasury Bill Rate	Deposit Rate	Real Deposit Rate	Lending Rate (Min)	Real Lending (Min)	Lending Rate (Max)	Real Lending Rate (Max)
1986	6.00	-26.76	6.00	-26.76	10.00	-22.76	11.00	-21.47	16.00	-16.76
1987	9.00	-23.47	12.00	-20.47	21.50	-10.97	18.00	-12.39	29.00	-3.47
1988	22.00	-8.39	12.00	-18.39	21.50	-8.89	18.00	-12.83	29.00	-1.39
1989	22.00	-8.83	15.50	-15.33	26.00	-4.83	20.00	-5.86	31.00	0.17
1990	22.00	-3.86	15.50	-10.36	26.00	0.14	20.00	-16.07	31.00	5.14
1991	22.00	-14.07	15.50	-20.57	26.00	-10.07	20.00	-8.52	31.00	-5.07
1992	22.50	-6.02	13.50	-15.02	26.00	-2.52	18.00	-3.93	31.00	2.48

Source: Author's own computations from the Bank of Tanzania publications: Economic and Operation Report and Quarterly Economic Bulletin (various issues).

As can be seen from Table 7.2, the nominal rate on all interest rates remained at high levels during most of this period. For instance, the nominal rate on saving deposits more than doubled from 10% per annum in 1986 to 26% in 1989, a rate that was maintained until 1992. During this period, the rate was frequently adjusted upwards to attain positive interest rates in real terms on 12-month fixed deposits. However, despite the positive trend of the nominal saving deposit rate during this period, the real rate remained low and was at times negative. For example, the real rate remained negative from 1986 to 1989 and from 1991 to 1992. The lowest real saving deposit rate (-22.76%) was recorded in 1986.

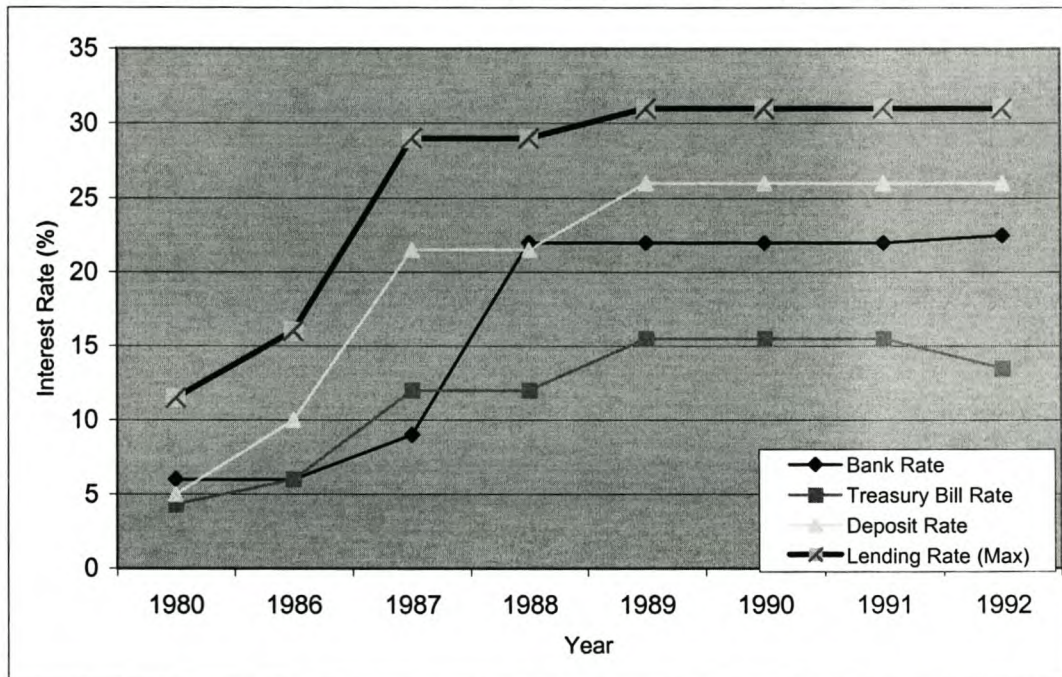
Other interest rates, such as Bank rate and the Treasury bill rate, showed similar trends. Bank rate, for example, increased from 6% per annum in 1986 to 9% in 1987. Thereafter, the rate more than doubled to 22% in 1988. As in the case of the deposit rate, the real Bank rate followed the same trend. The rate remained negative from 1986 to 1992, with the lowest rate (-26.76) being recorded in 1986.

The nominal Treasury bill rate was also substantially adjusted upwards during this period. The rate was increased from 6% in 1986 to 12% in 1987. It was then increased to 15.5% in 1989, where it remained for two years before being adjusted downward to 13.5% in 1992. The real rate however remained negative throughout the entire period, with the lowest (-26.76%) recorded in 1986.

The nominal lending rate, like other interest rates, was kept high during this period. The rate was increased from 16% in 1986 to 29% in 1987, where it stayed for two consecutive years. In 1989, the rate was increased to 31%, a rate which was maintained until 1992. Despite the high nominal lending rate, the real rate remained low due to high inflationary pressures during this period. In fact, the real rate remained negative for three consecutive years between 1986 and 1988. The rate, however, maintained a positive real

level between 1989 and 1992, except for 1991 when a negative rate (-5.07) was recorded. Figure 7.1 shows the trends of selected interest rates in Tanzania between 1986 and 1992 as compared to 1980.

Figure 7.1: Trends of Selected Interest Rates Between 1986-1992 as compared to 1980



Source: Compiled from African Development indicators, 2002; Bank of Tanzania Quarterly Economic Bulletins (various issues).

7.3.2 Interest Rates Behaviour After Interest Rate Liberalisation

Following the liberalisation of interest rates in 1992 and 1993, Tanzania suffered sharp increases in both nominal and real interest rates. For example, between 1993 and 2001, nominal discount and lending rates remained at a double-digit level, except for 2001. During the same period, the Treasury bill rate reached 40.33% in 1995 while the deposit rate reached 26% in 1994. The real lending rate, which was largely low and negative before interest rate liberalisation, persistently remained positive and high throughout the period. Table 7.3 shows the trends of selected interest rates between 1993 and 2001.

Table 7.3: Trends of Selected Interest Rates in Tanzania (1993-2001)

Year	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real
	Discount	Discount	Treasury	Treasury	Deposit	Deposit	Lending	Lending
	End-period	End-period	Bill Rate	Bill Rate	Rate	Rate	Rate	Rate
1993	14.50	-7.43	34.00	12.07	24.00	2.07	31.00	9.07
1994	67.50	42.23	35.09	9.82	26.00	0.73	39.00	13.73
1995	47.90	14.74	40.33	7.17	24.63	-8.53	42.83	9.67
1996	19.00	-9.37	15.30	-13.07	13.59	-14.78	33.97	5.60
1997	16.20	-4.80	9.59	-11.41	7.83	-13.17	26.27	5.27
1998	17.60	1.57	11.83	-4.20	7.75	-8.28	22.89	6.86
1999	20.20	7.38	10.05	-2.77	7.75	-5.07	21.89	9.07
2000	10.70	2.81	9.78	1.89	7.39	-0.50	21.58	13.69
2001	8.70	2.79	4.14	-1.77	4.81	-1.10	20.26	14.35

Source: Author's own computations from IFS Yearbook (2002)

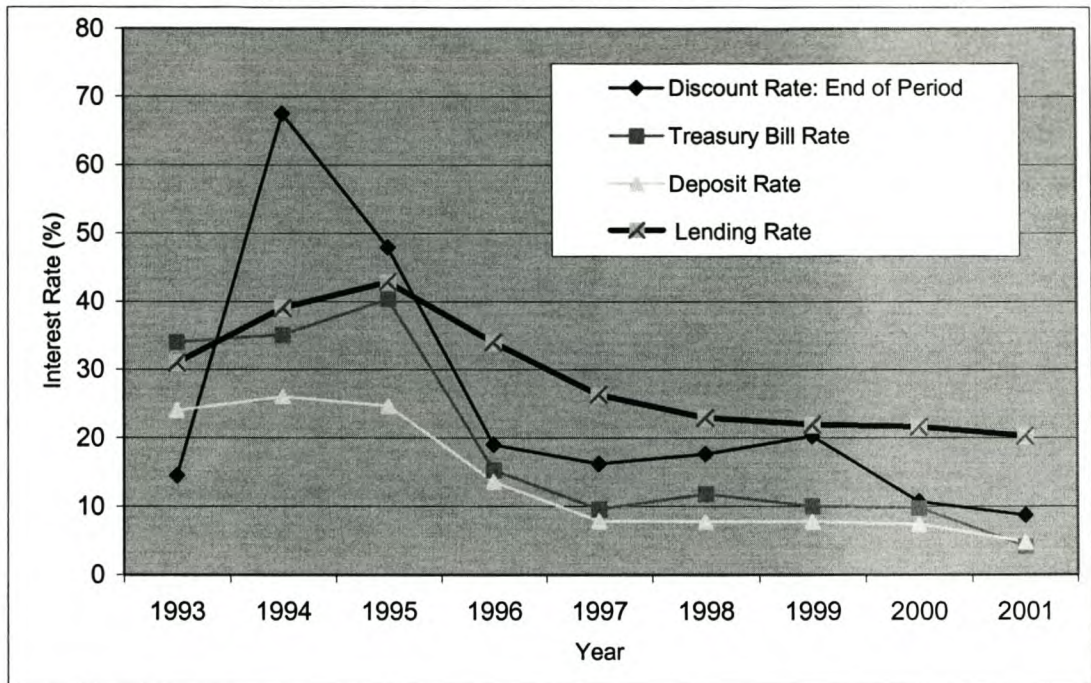
As shown in the above table, the nominal rate of all interest rates became very flexible after the financial liberalisation in 1993. The nominal discount rate (end of period), for example, remained at a double-digit level, with the exception of 2001 when the rate decreased somewhat to 8.7%. Unlike the pre-reform period, the real discount rate remained virtually positive throughout this period, except in 1993, 1996 and 1997 when the rate turned negative due to high inflation expectation.

The nominal Treasury bill rate also remained high during this period. The rate increased from 34% in 1993 to 40.33 in 1995. However, the rate later decline to 15% and 9.59% in 1996 and 1997 respectively. Although the rate increased to 11.83% in 1998, it decreased again to 10.05% and since then there has been a systematic decline in the Treasury bill rate. Although the nominal rate showed an increasing trend between 1993 and 1995, the real rate showed a declining trend during the same period. Between 1996 and 1999 the real Treasury bill remain negative, with the lowest rate (-13.07%) being recorded in 1996. Although the real rate turned positive again in 2000, it later declined to -1.77% in 2001.

Just like nominal discount rate and Treasury rate, the nominal deposit rate remained high between 1993 and 1995, but deteriorated between 1996 and 2001. The highest nominal deposit rate (26%) was recorded in 1994, while the lowest rate (4.81) was recorded in 2001. The real deposit rate however remained negative throughout this period with the exception of 1993 and 1994, when the rate was marginally positive.

Although the deposit rate was fully liberalised in 1992, the lending rate was only liberalised a year later. Following the liberalisation of the lending rate the nominal lending rate in Tanzania increased from 39% in 1994 to 42.83% in 1995. It later declined to 33.97% in 1996, and since then has showed a continuous and systematic decline. By 2001, the nominal rate reached 20.26%, the lowest rate since the onset financial liberalisation. Unlike other interest rates in Tanzania, the real lending rate remained positive throughout this period. As opposed to the nominal rate, the real lending rate increased phenomenally. The real rate increased systematically from 5.27% in 1997 to 14.35% in 2001. This is mainly due to the Tanzanian low inflation policy stand. Figure 7.2 shows the trends of selected interest rates in Tanzania between 1993 and 2001.

Figure 7.2: Trends of Interest Rates in Tanzania Between 1993-2001



Source: Compiled from IFS Yearbook (2002).

7.4 Financial Sector Reforms and Development in Tanzania

The financial system in Tanzania, unlike in Kenya and South Africa, is still in its infancy. The system is mainly bank-centred. The financial deepening and widening has not reached the expected level. The financial market is underdeveloped. There is no significant development of leasing institutions, housing finance institutions, hire purchase and retail credit companies. The long-term end of the market remains underdeveloped with small and weak contractual saving institutions and a relative small stock exchange, which was only established in 1996 and became operational in 1998. As a result, money and capital intermediaries such as dealers, brokers, discount houses and merchant banks have not developed to the level expected. However, the government of Tanzania attaches great importance to financial institutions and instruments. Within the Tanzanian economic context, financial institutions perform a number of roles. The most

significant of their roles is that they mobilise financial resources from the public, keep custody of the mobilised financial resources, finance activities of the economy through credit extension, participate in economic activities through equity, and offer advisory services on financial activities of the economy. The key players in the Tanzanian financial sector are BOT (which is the Central Bank), commercial banks, development banks, Postal Bank contractual savings institutions (e.g. National Insurance Corporation, National Social Security Fund, etc), hire purchase companies, savings and credit societies, informal deposit and credit groups, and the Dar-es-Salaam Stock Exchange (DES).

This section, therefore, reviews the development of financial sector in Tanzania as well as the reforms, which have been undertaken to date to enhance the sector. Some of the reforms discussed in this section include those of the central bank, banking and non-banking institutions, financial markets, and the foreign exchange market.

7.4.1 Central Bank Reforms

The central bank of Tanzania, which is popularly known as the Bank of Tanzania (BOT), was established in 1965 following the decision to dissolve the East-Africa Currency Board (EACB). BOT was formed by the Bank of Tanzania Act of 1965. The act empowered BOT to perform all the traditional central banking functions. However, within eight months of its inauguration in February 1967, the Arusha Declaration was proclaimed, and with it, BOT had to re-orient its policies. Most of the traditional instruments of indirect monetary policy stipulated in the Act became inoperative, as there was no longer an effective environment for indirect instruments. The Annual Finance and Credit Plan (AFCP), supported by a system of administered interest rates, was devised as the main instrument of monetary policy from 1971/72. Similarly, the Foreign Exchange Plan (FEP) was devised to control the use of foreign exchange in accordance with the national priorities. These plans were formulated in the Ministry of Development Planning, in consultation with BOT. However, BOT and the banking system were

responsible for their implementation. A system of direct controls was used for this purpose, as stipulated in the Exchange Control Ordinance and the Import Control Ordinance. During the same period, several other developments occurred, e.g. a radical transformation of the rural economy.

In order to enable BOT to better address these developments, the Bank of Tanzania Act was amended in 1978, which resulted in additional developmental functions being vested in the Bank. As stipulated in this amendment, BOT established four special funds. These were the Rural Finance, Industrial Finance, Export Credit Guarantee, and Capital and Interest Subsidy Funds. The funds were formed to provide finance and to offer guarantee facilities to banks and other financial institutions against their loans and advances to specified sectors of the economy. The amendment also shifted the responsibility of finance planning from the Ministry of Planning and Development to BOT. The Bank, therefore, became responsible for the preparation and implementation of the AFCP and the FEP. In addition, BOT was empowered to inspect and supervise commercial banks and other financial institutions (Bank of Tanzania publications, various issues).

BOT is currently empowered by the Bank of Tanzania Act, 1995, with the following primary objective: to formulate and implement monetary policy, which is directed towards the economic objective of maintaining price stability and soundness of the financial system over time⁴. In addition, the Bank has other subsidiary functions that include currency issuance, banker's bank, government's bank, advisor to the government, guardian of the country's international reserves, supervisor of banks and financial institutions, and promoter of financial development.

⁴ The previous role of allocating foreign exchange and directing credit and administering interest rates was relinquished.

BOT is currently using a number of instruments to implement its monetary policies. The instruments include the discount rate, minimum reserve requirements and open market operation. Each of these will be discussed separately in more detail below.

Discount Rate Policy: In order to ensure that the activities of banks continue smoothly, BOT uses its refinancing and open market policy to accommodate banks and to assist them in meeting their inter-bank obligations. Within the framework of the refinancing policy, BOT establishes conditions for refinancing commercial banks. The refinancing policy used for this purpose may either be discount policy or Lombard policy. Within the framework of the discount policy, BOT buys from and sells to banks trade bills, Treasury bills and other specified securities at a rate (discount rate) set by itself. Under the discount rate policy, BOT uses one or both of qualitative discount and quantitative discount policies.

Minimum Reserve Policy: BOT determines the minimum reserve requirements of commercial banks to be held with BOT, interest-free, including all shilling deposits and borrowing from the general public. The minimum reserve ratio is uniformly applied to all banks, although, according to the Bank of Tanzania Act, the ratio may differ according to type of deposit. In April 1994, the minimum reserve requirement was lowered from 10% to 8%. However, in September 1994 the minimum reserve requirement was increased again from 8% to 12%. In January 1995, it was increased further from 12% to 15% and thereafter to 18% in June 1995. In September 1995 the commercial banks were allowed to hold up to 50% of the statutory minimum reserve requirements in Treasury bills. The measure was aimed at enhancing financial intermediation in the economy and improving liquidity position of commercial banks. In October 1995, the minimum reserve requirement was reduced from 18% to 12%. In 1996, the entitlement of commercial banks to hold up to 50% of their statutory minimum reserve in Treasury bills was abolished. Although the minimum cash reserve ratio was reduced from 12% to 6% in

January 1997 (whereby cash in vaults was excluded from available reserves), the reserves against deposits and borrowing were later amended in March 1997. The minimum cash reserve ratio was raised from 6% to 12% and included cash in vaults as part of available reserve.

Open Market Policy: Although the institutional framework for carrying out open market policy in Tanzania is still somewhat limited, BOT has been resorting to Treasury bill auctions, repurchase agreements to tap sales of Treasury bills and direct sales of certificate of deposits. The auction proceeds from Treasury bills and bonds have to a large part been for the government (in the form of Financing papers), though part has been for sterilisation by BOT (Liquidity papers). The effect of open market operations in Tanzania has recently been enhanced substantially due to the increased amount of sterilised Treasury bills and the suspension of a government overdraft with BOT.

7.4.2 The Banking Sector Reforms and Development in Tanzania

The banking sector in Tanzania is relatively small and less developed when compared to those of Kenya and South Africa. A number of factors have contributed to the current underdevelopment of the Tanzanian banking sector. The main constraint is financial repression although a weak and unclear institutional framework also contributes. The key elements of financial repression include restrictions on entry into the banking sector, and these were often combined with public ownership of major financial institutions. Other restrictions were high reserve requirements on deposits, statutory ceilings on bank lending and deposits, quantitative restrictions on credit allocation, restrictions on capital transaction and foreign exchange transactions.

Before financial reform in the 1990s, state-owned banks dominated the Tanzanian banking sector. For example, in 1980 the National Bank of Commerce (NBC) expanded its operations to most parts of the country. By 1990, the bank had, apart from the head

office in Dar-Es Salaam, 25 regional offices, district offices in all mainland districts, 182 branches and 220 agencies. The main purpose of this was to try to reach as many people as possible in an effort to mobilise domestic savings.

Since the 1990s, the government has implemented a number of policy and institutional reforms in order to strengthen the development of financial institutions in Tanzania. For example, the Banking and Financial Institutions Act of Tanzania was passed in 1991 in order to modernise the legal and regulatory framework so as to allow for competition in the delivery of financial services. A law was also passed by the Parliament in 1991, which led to the establishment of the Loans and Advances Realisation Trust (LART). The main aim of this law was to address the large portfolio of non-performing loans.

In 1997 the government began restructuring NBC, which by then had a market share of 90%. The move was aimed at scaling down bureaucracy, and building an efficient, modern, and highly competitive banking institution. The effects of restructuring resulted in the splitting of the NBC into three institutions, namely NBC (1997) Limited, the National Microfinance Bank (NMB) Limited, and the NBC holding corporation. These institutions began operations on 1st October 1997 under the ownership of the government, pending their privatisation. The government later appointed a transitional management committee to handle the transitional issues and arrangements. In order to improve the efficiency of these institutions and enhance the stability of the financial system at large, the government also committed itself to restructuring the remaining state-owned banks and financial institutions. These were the People's Bank of Zanzibar (PBZ), Tanzania Investment Bank (TIB), Karadha company and the Tanzanian Postal Bank.

Currently there are about 18 banks, 11 non-bank financial institutions and 80 foreign exchange bureaux operating in Tanzania. The directorate of banking supervision of the BOT is responsible for licensing the commercial banks in Tanzania.

7.4.3 Other Financial Intermediaries in Tanzania

Apart from BOT and the commercial banking sector, there is a wide range of financial intermediaries in Tanzania. These are non-bank financial intermediaries (such as, e.g. institutions offering leasing and hiring services), and the informal financial sector. This last category includes, for instance, informal commercial money-lenders as well as financial associations among neighbours. Each of these sets of financial intermediaries will be discussed separately below.

Non-Bank Financial Institutions in Tanzania

Non-bank financial institutions are defined in Tanzanian as institutions or persons authorised by law to engage in banking business not involving the receipt of money on current account subject to withdrawal by cheque. The number of non-bank financial institutions in Tanzania has increased from 3 in the 1980s to 11 in November 2000. Non-bank financial institutions in Tanzania can be divided into deposit-taking and non-deposit-taking institutions.

Deposit-taking institutions incur liabilities in forms other than demand deposits, e.g. time and savings deposits. They also mobilise deposits by offering various types of deposit schemes (in Tanzanian shilling and foreign exchange), providing banking services (other than cheque accounts), and by participating in money market operations.

Non-deposit-taking institutions, on the other hand, can be grouped as follows:

- i) Institutions offering leasing and hire-purchase services: This service was monopolised by one state-owned company until 1991, when the Banking and Financial Institutions Act, of 1991 was enacted.

ii) Institutions offering development finance: These institutions provide long-term finance to the public and private sector in the form of loans for medium- to large-scale investment. Due to stiff competition from commercial banks, these institutions are planning to become merchant banks.

iii) Institutions offering pension fund and insurance services: these are the most active of all groups in terms of outreach, volume, and frequency of payments.

Informal Financial Sector

Apart from the formal financial institutions highlighted in the preceding sections, there are a number of informal financial institutions operating parallel to formal financial institutions. Informal financial institutions in Tanzania can be broadly classified into four groups. These are

- i) financial arrangements among relatives, neighbours, and friends;
- ii) commercial moneylenders;
- iii) savings and credit societies (SCSs); and
- iv) Rotating Savings and Credit Associations (ROSCAs).

Each of these four groups will be discussed separately below.

i) Financial arrangements among relatives, neighbours, and friends: These arrangements have a long tradition in Tanzania. No interest is charged on the loans given out to relatives, neighbours and friends. At present there are no in-depth studies focused on informal financial associations, and so it is not possible to gauge the magnitude of this phenomenon in Tanzania. However, there is evidence that this kind of financial

arrangement is substantial. Credit from friends and relatives constitute an important source of start-up capital for many informal sector enterprises. In 1985, credit from this group constituted up to 55% of total start up investment funds⁵.

ii) Savings and Credit Societies (SCSs): This type of financial arrangement consists of groups of people who have in common ethnic origin or a residential or occupational bond, and who adhere to internally set rules and regulations. Most of these groups are formed spontaneously, though in some situations the government has tried to influence their formation. According to the Co-operatives Societies Act of 1991, primary co-operatives are allowed to raise money from their members through deposits and shares that the farmers pay when they first enter a society.

iii) Rotating Savings and Credit Associations (ROSCAs): The Rotating Savings and Credit Association (ROSCAs) are popularly known as “Upatu” in Tanzania. These financial associations are owned and controlled by a group of people, and in most cases, they offer both credit and saving services. A study done in the 1990s found that “Upatu” groups intermediate a substantial volume of savings among their members. The study also found that members participate in these thrift groups as a response to the economic hardships they face due to increases in the cost of living and the inaccessibility of formal financial credit.

7.4.4 Financial Market Reforms and Development in Tanzania

Tanzania’s financial market, as in the cases of Kenya and South Africa, can be conceptually divided into two markets, namely the money market and the capital market. The establishment of money and capital markets in Tanzania was done in phases. For example, in 1993 the Treasury bills market was introduced. In 1994, the Capital Markets

⁵ See Sabai et al (1989), URT (1991) and Mushi (1998).

and Securities Act (1994) was enacted, thereby providing an enabling environment for the establishment of a stock market to provide long-term capital. By 1998, the inter-bank money market and the Dar-es-Salaam Stock Exchange (DSE) were operational. The reform and development of the money and capital markets will be discussed in more detail separately below.

The Money Market

The Tanzanian money market is not fully developed. At present, dealings in the money market by BOT are effected with only Treasury bills and the repurchase agreements (repos)⁶. Open market operations have been undertaken exclusively in 91-day Treasury bills (liquidity papers), the proceeds of which are sterilised in a blocked BOT account, while 182-day and 364-day Treasury bills (in the form of financing papers) are used for financing the governments' deficits. Treasury bills are sold in the primary market through auctions, which started in August 1993, to commercial banks, other financial institutions, official entities, businesses and individuals. The bills can be discounted at BOT at the prevailing discount rate, at the discretion of the Bank. The secondary market in Tanzania is still at an early stage of development.

The Capital Market

Before the 1990s, capital markets in Tanzania were almost non-existent, and there were no efforts to develop them for the mobilisation of long-term capital. Likewise, no efforts were made to provide legal assurance against nationalisation of foreign companies in order to appease the fears of foreign investors. The active development of capital markets only began in the 1990s, after financial reforms. The underlying reason why the Tanzanian government found it necessary to develop its capital market is based on the transition of the country's economy from a 'planned' economy, dominated by parastatal

⁶ Open market operations under repurchase agreement (REPOS) refer to the sale of specified bills and securities with a commitment by the seller to buy the securities back at a specified price and designated future date.

enterprises, towards a 'market' economy, where the private sector is expected to play an increasingly important role. In 1994, the Capital Markets and Securities Authority (CMSA) was established and became operational as a unit of BOT. The unit later became autonomous in July 1995. The CMSA's vision, as expressed in section 10 of CMSA Act 1994, is to develop and regulate a sustainable capital market that is efficient, transparent, orderly, fair and equitable to all. Since its creation, the CMSA has initiated several activities aimed at strengthening the Tanzanian capital market's development.

Following the establishment CMSA Act 1994, the Dar-es-Salaam Stock Exchange (DSE) was incorporated in September 1996. The establishment of the Dar-es-Salaam Stock Exchange, which was a government initiative, was an important milestone in the effort toward the development of a well-functioning capital market for the mobilisation and allocation of long-term capital to the Tanzanian private sector. Trading operations of the DSE started in April 1998 with the listing of the first company, Tanzania Oxygen Limited. The second company to be listed was Tanzania Breweries Limited, and one of the latest listing is Tatepa. By December 1999, four companies had been listed on the DSE. Three of these companies raised a combined equity capital of 28.57 billion shillings in the primary capital market. There are presently five stock broking firms licensed to deal on the exchange. There are also a number of pending listings of large companies and trading is expected to pick up once the government authorises the participation of foreign firms in the market.

Overall, the Tanzanian capital market is still relatively under-developed when compared to Kenya's and South Africa's. Bank financing and government subsidies have for a long time been the source of finance for public corporations and companies. There is a noticeable absence of public companies (i.e. companies allowed to invite subscriptions from the public). Many companies in Tanzania are private, and their rights to transfer shares are severely restricted. The number of securities is rather limited, with government debt instruments being the only securities in the market (i.e. stocks and Treasury bills). A

secondary market for government securities is now in the process of being established. Pension and provident funds are the only major collective investment schemes.

7.4.5 Foreign Exchange Reforms

Before the liberalisation of the financial sector in the 1990s, foreign exchange transactions in Tanzania were largely controlled. However, following the enactment of the Foreign Exchange Act of 1992, foreign exchange controls were gradually eased by the Bank of Tanzania. The Foreign Exchange Act (1992) replaced the Exchange Control Ordinance, which prevailed during the financially repression era. The main aim of the Foreign Exchange Act (1992) was to provide an enabling environment for the efficient allocation of foreign exchange resources. Another aim was to facilitate market-determined exchange rates. Since then, individuals were allowed to hold foreign currency and maintain foreign exchange accounts at commercial banks within Tanzania. This was followed by the introduction of foreign exchange auctions in July 1993. In the same year, BOT began using foreign exchange auctioning as a tool for both liquidity management and the determination of market based exchange rates. The Bureaux and official exchange rates undertaken by BOT were also unified in August 1993, and thereafter forex auctions were extended to include commercial banks.

In June 1994, the daily inter-bank foreign exchange market (IFEM) was introduced to replace the weekly foreign exchange auctions. The IFEM is a wholesale market, which plays an important role in the determination of the country's official exchange rate and the provision of forex for the accumulation of international reserves. The main objectives of IFEM are:

- a) to allow banks and other authorised dealers to play an active role in developing markets and instruments;

- b) to increase the efficiency in the allocation of foreign exchange reserves, thereby facilitating market-determined exchange rates;
- c) to create a favourable environment for foreign investment, which could ultimately pave the way to full liberalisation of the capital account; and
- d) to improve the conduct of monetary policy (BOT – Overview of Market Trends)

In 1996, two subsidiary regulations of the Foreign Exchange Act 1992 namely, the Bureau de Change Regulation (1996) and the Foreign Exchange Regulation (1996) were introduced. These regulations are used directly for regulation purposes, just like the Foreign Exchange Act of 1992. However, the Foreign Exchange (Bureau de Change) Regulations only became effective in April 1999.

The Tanzanian foreign exchange rate is unitary and based on independent floating. The official exchange rate is set within 2% of the current day's market rate. Tanzania signed a clearing agreement within common markets for Eastern and Southern Africa (COMESA), formerly known as Preferential Trade Area for Eastern and Southern African States. Tanzanian shillings have been freely convertible to Kenyan and Ugandan shillings since July 1996. After clearing excess holdings are credited in US dollars to the respective central banks every two months. The administration of foreign exchange controls in Tanzania is delegated to the Customs Department / BOT by the Ministry of Finance. The authority to make payments abroad, however, is delegated to licensed banks in Tanzania. BOT intervenes in the inter-bank forex market to smooth out changes that are due to seasonal factors. For example, during the first half of 1997, BOT intervened in the market through open market operations to sterilise inflows resulting from good export performance⁷. Accounts in foreign and convertible domestic currency may be held domestically by residents and non-residents, but non-residents need prior

⁷ Mehran et.al (1998).

BOT approval. All transfers of foreign exchange funds from residents to non-residents or to foreign-controlled resident bodies require specific BOT approval. Similarly, transfers of funds from non-residents to residents require BOT approval. Residents are not allowed to hold foreign exchange accounts abroad. Non-residents may transfer the non-convertible account balances abroad with BOT approval. Payments on income transfers by non-residents are permitted provided that all tax obligations have been met.

All outward capital transfers from Tanzania are subject to approval by commercial banks, and all foreign investments by residents are subject to BOT approval. Various controls apply to inward transfers. Prior BOT approval is required for non-resident purchases of securities, derivatives and real estate, and all credit operations between residents and non-residents. All foreign direct investment must be approved by the Investment Promotion Centre (IPC). In addition, the Tanzanian government, in order to boost the country's attractiveness for foreign investors, accepted the obligations of article VIII of the IMF's Articles of Agreement in 1996.

7.5 Post-Financial Liberalisation Challenges

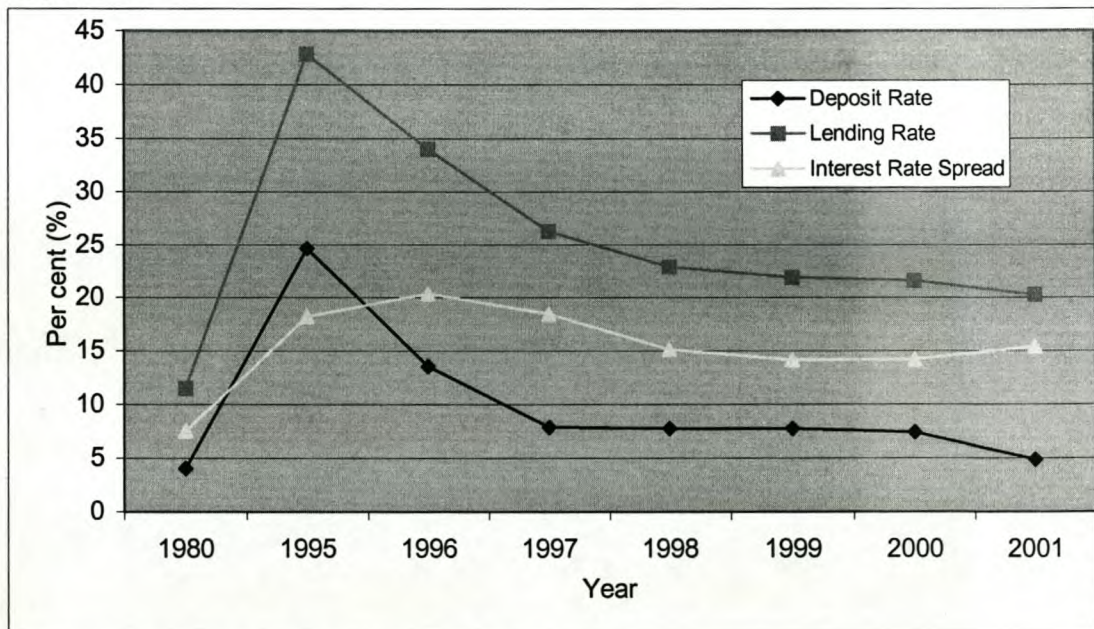
The liberalisation of the Tanzanian financial sector has, as in Kenya and South Africa, not been without major challenges. Apart from the sharp increases in interest rates discussed in section 7.3, some of the challenges facing the Tanzanian financial sector include wide and expanding spreads between lending and deposit rates, the systematic decline in domestic credit to the private sector, an unstable exchange rate and mixed trends in financial depth vis-à-vis economic growth. Each of these challenges will be discussed in more detail below.

7.5.1 Spreads Between Lending and Deposit Interest Rates

Although the ultimate goal of interest rate liberalisation in Tanzania was to allow interest rates to be determined solely by the market forces of supply and demand, the widening

spread between the lending and deposit rates in Tanzania has been a major challenge to the country's monetary authorities. Theoretically, high real lending rates limit the potential for lowering the cost of finance for investment, while low real deposit rates deter higher financial savings. The range of interest rates spread in Tanzania has widened considerably since the country liberalised its interest rates in 1992 and 1993. For example from 1986 to 1992 (i.e. before interest rate liberalisation), the spread between the nominal lending and deposit rates ranged between 5% and 8% per annum. However, since the liberalisation of interest rates, the spread between nominal lending and deposit rates widened phenomenally, with the highest spread of about 20% being recorded in 1996. Although the spread decreased to 18% in 1997 and further to 14% in 1999 and 2000, it later widened to about 15% in 2001. Figure 7.3 shows the spread between the lending rate and the deposit rate between 1995 and 2001 as compared to 1980.

Figure 7.3: The Spread between Deposit and Lending Rates in Tanzania During 1995-2001 as compared to 1980



Source: Compiled from International Financial Statistics Yearbook (2002).
 N/B: Interest Rate Spread = Lending rate - Deposit rate.

The wide spread between deposit and lending rates indicates that banking sector competitiveness has not been fully achieved in Tanzania. This phenomenon has, among other effects, acted to defer savings mobilisation and to channel such resources to productive activities (See World Bank 2000).

The wide range of interest rate spread can be attributed to rigidities in the cost structure of the main commercial banks, to high credit risks based on the past high default rates, and to a lack of robust competition in the banking sector. Although the Tanzanian government has made some efforts to correct this anomaly by privatising the state-owned banks, there is still need to further enhance competition among the private banks. There may also be a need to re-examine the cost implications of the minimum reserve requirements to banks.

7.5.2 Post-Financial Liberalisation Exchange Rate Trends in Tanzania

Another challenge facing the Tanzanian financial sector is the unstable real exchange rate of the Tanzanian shilling. Although Tanzania has managed to stabilize its nominal exchange rate, the extent of overvaluation of the real effective exchange rate, especially during 1995 and 1998 remains a challenge for the country. For example, between 1986 and 1994, the exchange rate steeply depreciated to levels consistent with market conditions - thereby re-establishing external competitiveness. However, between 1995 and 1998, the Tanzanian shilling's real value rose significantly. For example, the real value of the Tanzanian shilling increased by 30.65% by the end of 1998. In 1999, however, there was a corrective depreciation of the Tanzanian shilling when its value fell sharply against the dollar by nearly 25% in nominal terms (World Bank, 2000).

Indeed, the depreciation of Tanzanian shilling in 1998/99 adversely affected a great deal of the Tanzanian business community, especially the importers. However, according to BOT the depreciation was well received by exporters (Bank of Tanzania, press release of 23rd August 1999). Furthermore, the depreciation was in line with the country's current

economic policies, including the determination to maintain a market determined exchange rate. In 1999 the shilling depreciated at the inter-bank foreign exchange market by more than 6% within one month (between June and July 1999). The shilling exchange rate was Tshs. 740 per US dollar in June 1999, but precipitously depreciated to Tshs 786 in July 1999.

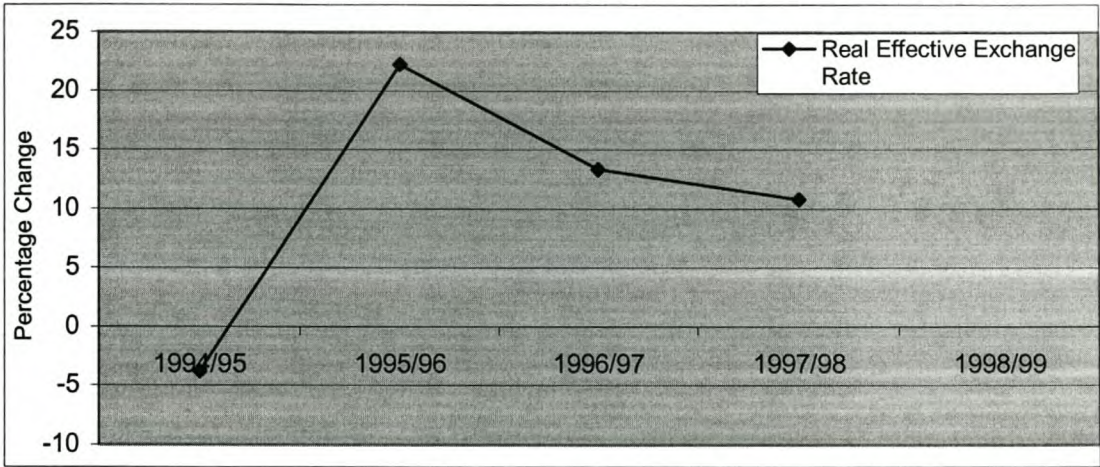
Some of the major factors influencing the Tanzanian exchange rate include exports growth, import growth, the flow of external financial assistance, the inflation rate differential between Tanzania and its major trading partners, and the status of the government's macroeconomic policies. However, in the case of the 1998/99 exchange rate developments the fall in exports was the main factor behind the depreciation of the shilling. Tanzanian exports fell sharply by about 30% between 1997 and 1999. Exports were US \$ 793.6 million in 1996/97, dropping to US\$ 644.9 in 1998, and further to US\$ 562.3 million in 1998/99. The reasons for the steep decline are adverse weather conditions, a decrease in the world prices of Tanzania's major export commodities (particularly cotton, tea and coffee), and inappropriate sector policies affecting key export commodities. Among traditional commodities, cotton exports experienced the largest drop of 61% in 1998/99, mainly because of a fall in both volume, by 52%, and price, by 19%. Tea exports fell by 34%, and coffee exports by 12% in 1998/99. Substantial increases in cashew nuts exports were not adequate to compensate the loss suffered in major traditional export crops. In the non-traditional area, mineral exports, which in recent years have become the largest and most dynamic non-traditional export commodity, faced a major setback in 1998/99. Mineral exports dropped by 57% in 1998/99, from US\$127.3 million in 1997/98 to only US\$54.8 million. Increases in horticultural produce and fish exports, following the lifting of the ban by the EU, were inadequate to prevent a decline in non-traditional total exports, which fell by 17.6%. In all, the drop in total exports in 1998/99 reduced substantially the availability of foreign exchange in the economy, which in turn brought pressure on the exchange rate leading to the Tanzanian shilling's depreciation.

The continued growth in imports, in the face of falling exports, was also an additional factor in the shilling's depreciation. Imports rose from US\$1,387.8 million in 1996/97 to US\$1,401.6 million in 1997/98, and then rose strongly to US\$1,501.1 million in 1998/99. The flow of external assistance to Tanzania was also lower than expected, mainly because of slow progress in the implementation of some key infrastructure projects, and in the utilisation of the available external assistance.

However, various other factors also functioned to stabilise the shilling. In particular, the decline in the inflation rate from 30% in 1995 to a single digit level in 1999 was a major factor in the shilling's stability until mid-1999. Under normal circumstances, a currency is expected to continually depreciate in nominal terms as long as the inflation rate in the country remains higher than the average inflation rate of that country's major trading partners. In Tanzanian's case, the inflation rate differential with its trading partners was large before 1996. However, due to the successful government reform program, the inflation rate was reduced considerably, from about 30% in 1995 to 7.7% in June 1999. This means that, although in nominal terms the shilling was depreciating, in real terms it was appreciating.

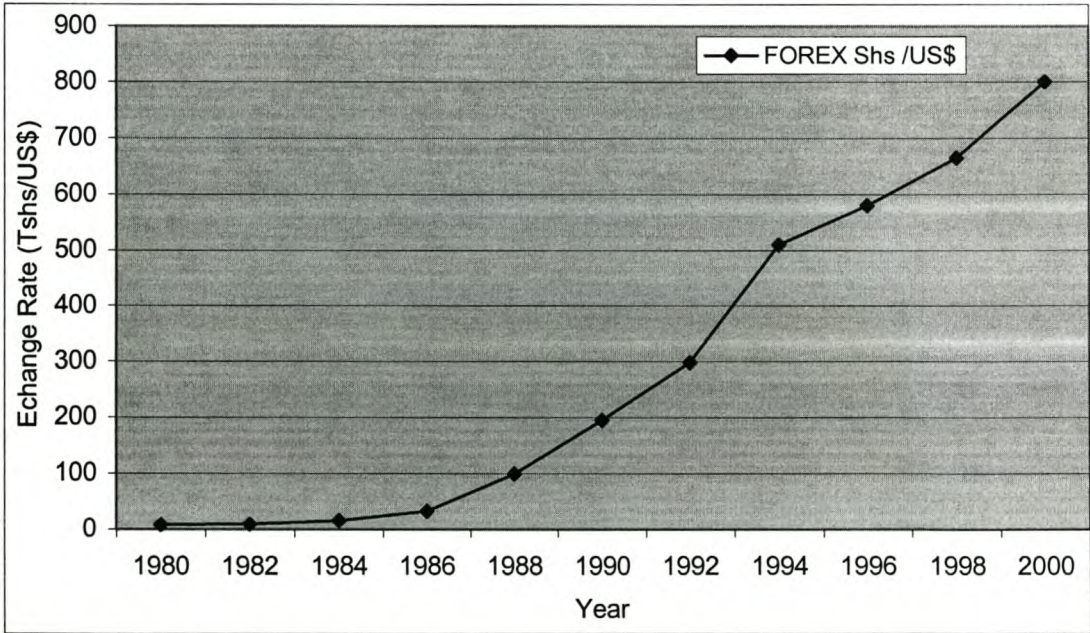
Figure 7.4 shows the real effective Tanzanian exchange rate between 1994/95 and 1998/99 while Figure 7.5 presents the average nominal exchange rate between 1982 and 2000.

Figure 7.4: The Real Effective Exchange Rate of Tanzanian Shilling Between 1994/95-1998/99



Source: Compiled from IMF Press Release No. 99/9 (1999).

Figure 7.5: The Nominal Exchange Rate of Tanzanian Shilling Between 1982-2000 (Period Average)



SOURCE: Compiled from International Financial Statistics Yearbook (2002).

7.5.3 Financial Liberalisation and Credit Allocation

Another major challenge currently facing the Tanzanian financial sector is the extent to which the credit allocated to the private sector has been declining since the 1990s. Indeed, the performance of credit growth, particularly credit available to Tanzania's productive sectors, has not been impressive after liberalisation (World Bank, 2000). Commercial bank lending experience during the post-financial reform period shows that there is a general decline in the rate of growth of credit expansion as a percentage of GDP. Table 7.4 is a presentation of credit allocation trends as a percentage of GDP and as a percentage of deposits during the period 1986 to 1998.

Table 7.4: Trends of Credit Allocations to the Private Sector in Tanzania (1986 – 1998)

Year	Credit / GDP (%)	Credit / Deposit
1986	17.62	84.35
1987	25.38	126.40
1988	22.72	123.80
1989	25.74	138.76
1990	25.90	141.00
1991	28.62	154.0
1992	21.34	109.0
1993	23.07	102.0
1994	19.04	88.5
1995	12.94	48.8
1996	6.01	25.5
1997	6.15	27.70
1998	6.98	28.45

Source: Bank of Tanzania Quarterly Economic Bulletin; Ziorklui, 2001

As can be seen from Table 7.4 the credit expansion to the private sector as a percentage of GDP declined from 28.62% in 1991 to 6.98% in 1998. Likewise, the total credit allocation as a percentage of the aggregate deposit dropped from 154% in 1991 to about

28.45% in 1998. The declining trend of the credit to the private sector in Tanzania has casts doubts on the efficacy of financial liberalisation towards extending credit to the Tanzanian private sector.

The decline in credit allocation can be largely attributed to the banking sector's collapse before the initiation of financial sector reforms. Since the banking sector provides the link between short-term and long-term credit to the private sector through loans and overdraft advances, the collapse of the banking sector had a deleterious effect on credit allocation to the private sector. Also, the history of loan defaults affected the general morality of extending long-term credit to the private sector. BOT's implementation of its prudential regulatory and supervisory functions also significantly contributed to the decline in credit allocation to the private sector. The bank's imposition of lending restrictions on problem borrowers resulted in a sharp decline to parastatal enterprises, most of which had large non-performing loans. The restructuring of the National Bank of Commerce (NBC), the largest bank in the country also had an impact on credit allocation to the private sector (Ziorklui, 2001). It was expected that the restructuring of NBC into corporate and microfinance divisions would benefit small and medium-sized enterprises in terms of their credit needs. However, the NBC maintained a stringent loan portfolio management and loan provisioning system during its restructuring that resulted in a drastic decline of credit to the private sector. In addition, the expectation that restructuring of banks would lead to an increase in credit allocations did not materialise. This was largely due to the lack of competition and the attractiveness of investment in government Treasury Bills that has the potential of higher yields.

Another factor that has inhibited banks from extending credit to the private sector is the increase in statutory reserve requirements by BOT. The minimum reserve ratio, for example, was increased from 12% in 1994 to 18% in 1995 – although the ratio was later reduced to 12% and 10% in 1996 and 1997 respectively. [For more details, see Ziorklui (2001)].

7.5.4 Post-Financial Liberalisation Savings and Investment Trends

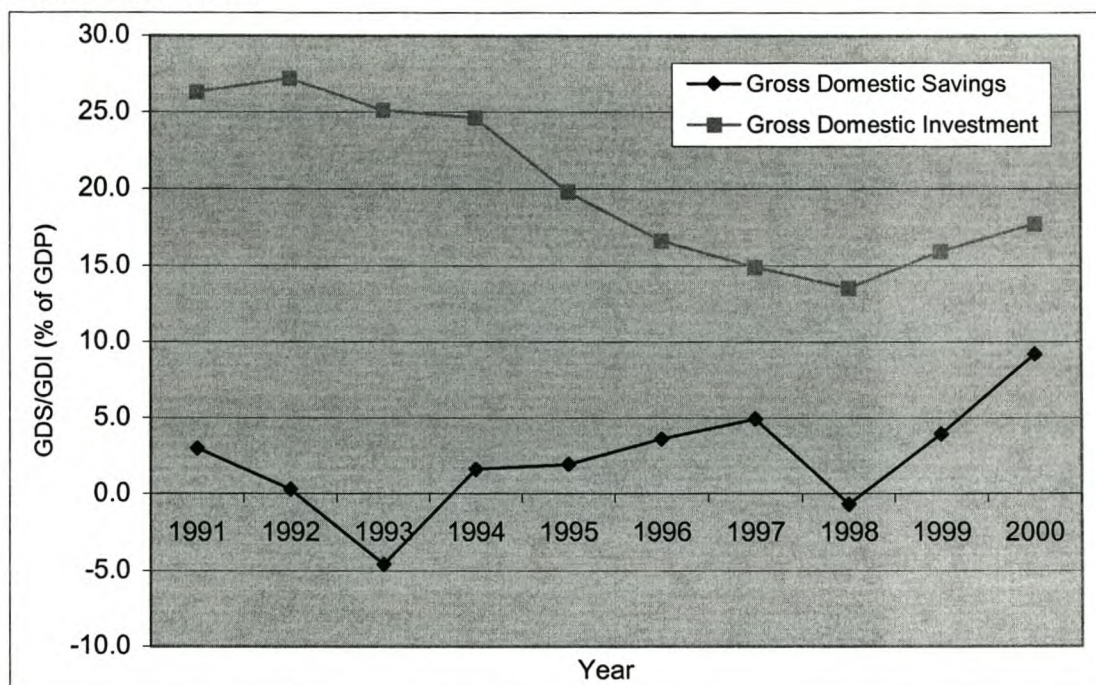
Like those of other sub-Saharan African countries, Tanzania's savings mobilisation and investment trends have been mixed since the onset of financial liberalisation. For example, the upward trend of financial savings experienced through 1992 did not last for long. In 1998, financial savings decline to 13% from the 52% recorded in 1992. It is evident that even after the deregulation of interest rates in Tanzania, the financial savings of the banks and non-bank financial institutions remained moderate. During the period 1986 to 1997, the deposits of bank and non-bank financial institutions grew by an average of only 2.6% and 2.3% respectively.

Just as in the case of financial savings, domestic savings and investments have also remained relatively low with mixed trends after financial liberalisation. For example, between 1975 and 1984 gross domestic savings as a percentage of GDP averaged 11%. Between 1985 and 1989 it decreased to 7.1%. Between 1991 and 1993 gross domestic savings as a percentage of GDP decreased systematically, with the lowest savings of -4.6 being recorded in 1993. Although the rate increased between 1994 and 1997, the savings decreased to -0.7% 1998. However, between 1999 and 2000 saving increased dramatically. Saving increased from -0.7% in 1998 to 3.9% in 1999 and to a historic 9.2% in 2000. Overall, the post-reform saving rate in Tanzania is lower than the pre-reform saving rate.

While the gross domestic saving as a percentage of GDP increased somewhat between 1994 and 1997, and 1999 and 2000 the gross domestic investment as a percentage of GDP maintained a constantly declining trend since the liberalisation of interest rates in 1992 until 1998 (See African Development Indicators, 2002). The investment decreased from 27.2% in 1992 to 24.6% in 1994, 16.6% in 1996 and to 13.5% in 1998. There was, however, an improvement in the investment rate in 1999 and 2000. Gross domestic investment increased from 13.5% in 1998 to 15.9% and 17.7% in 1999 and 2000

respectively. Figure 7.6 shows the trends of domestic savings and domestic investment between 1991 and 2000 as a percentage of GDP.

Figure 7.6: Trends of Gross Domestic Savings and Gross Domestic Investment as a % of GDP between 1991 and 2000.



Source: Compiled from African Development Indicators (2002).

7.5.5 Financial Liberalisation, Financial Depth and Economic Growth in Tanzania

Although Tanzania has recorded a dramatic recovery in economic growth since the onset of financial liberalisation in the 1990s, the trend of its financial depth as measured by M_2/GDP is mixed, and is on average lower than the pre-reform depth. Analogously, this could mean that the Tanzania real sector is growing faster than the monetary sector.

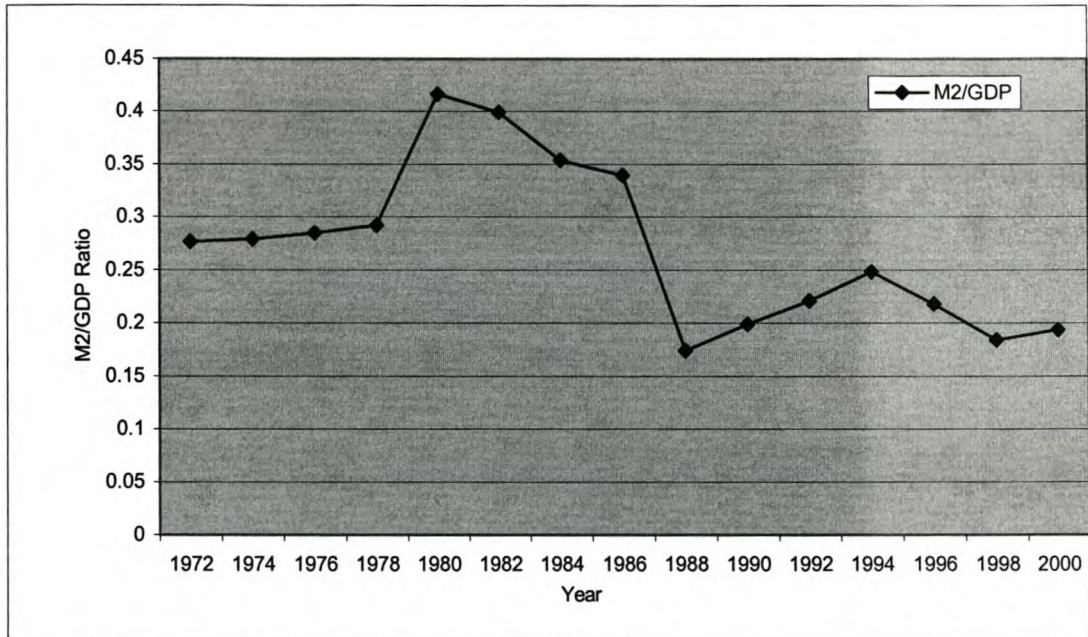
For example, between 1969 and 1973 the average M_2/GDP ratio was about 0.260. Between 1974 and 1978, the average ratio increased to about 0.287. During 1979 and 1983 the ratio increased further to about 0.408. Between 1984 and 1988 the country

suffered a sharp contraction of financial depth, and by 1988 the ratio reached a historic low ratio of about 0.174. The ratio later increased to about 0.184 in 1989 and 0.199 in 1990, but later declined slightly to 0.198. Immediately after interest rate liberalisation in 1992 and 1993, the M_2/GDP ratio rose considerably. The ratio rose to about 0.248 in 1994 and 0.251 in 1995 from about 0.244 in 1993. However, between 1996 and 1998, the ratio declined considerably. The ratio declined from about 0.251 in 1995 to about 0.218 in 1996 and later to 0.197 in 1997 and 0.184 in 1998. In 1999 and 2000, the ratio improved to about 0.189 and 0.193 respectively. Although the financial depth ratio has recently shown an upward trend, it is still lower than the average ratio recorded in the 1980s.

However, unlike in Kenya and South Africa, the Tanzanian economic growth rate has remained either high or modest throughout the post-reform period. For example, between 1991 and 2000 Tanzania recorded an average annual percentage GDP growth rate of about 3% compared to about an average rate of about 1.69% and 1.68% recorded in Kenya and South Africa, respectively. In 1991 and 1992 Tanzania recorded a low annual GDP growth rate of about 2.1% and 0.6% respectively (See African Development Indicators, 2002). However, in 1993 the rate increased to 1.2%. Following the liberalisation in 1992 and 1993, the real GDP growth rate increased phenomenally. The rate increased from 1.2% in 1993 to 1.6% in 1994 and thereafter to 3.6% in 1995. By 1996, the Tanzanian annual GDP growth rate reached 4.6%. Although the rate decreased to 3.5% in 1997, it later increased to 3.7% in 1998, before declining slightly to 3.6% in 1999. However, in 2000 the country's GDP growth rate increased significantly to about 5.1%, the highest GDP growth rate recorded in Tanzania in more than a decade.

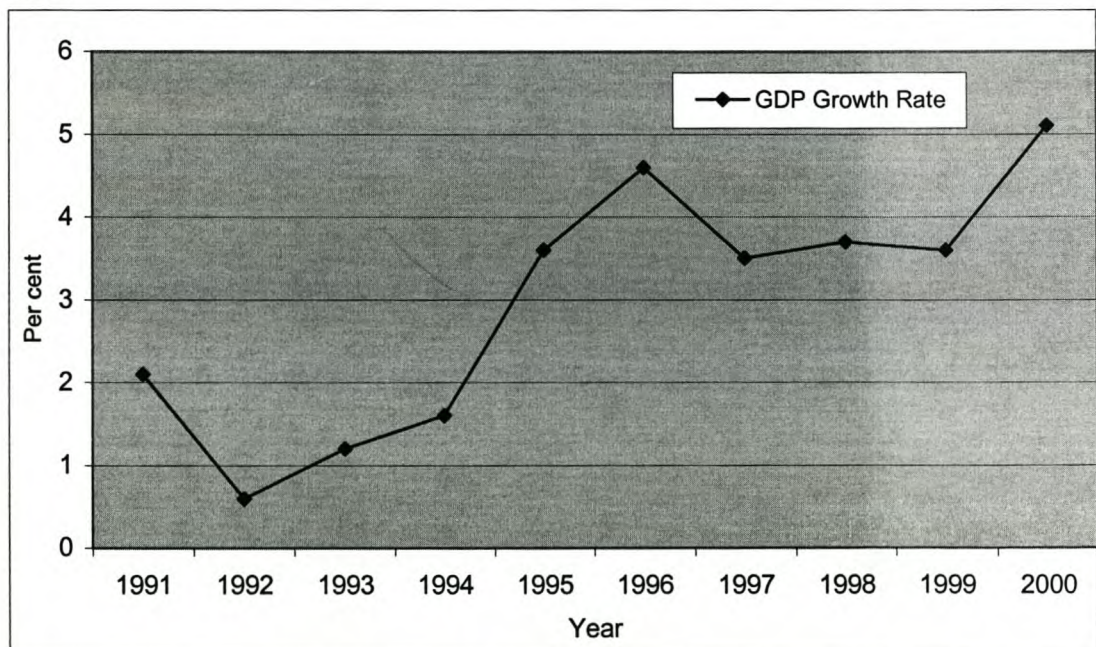
On average, the Tanzanian GDP growth rate is by and large higher than those of Kenya and South Africa – even though the country's financial sector is relatively narrow and less developed. Figure 7.7 shows the trend of M_2/GDP between 1972 and 2000 while Figure 7.8 shows the annual growth rate of real GDP during the period 1991-2000.

Figure 7.7: The Trend of M2/GDP ratio in Tanzania between 1972-2000



Source: Compiled from International Financial Statistics Yearbook (2002).

Figure 7.8: The Trend of Annual Real GDP Growth Rate During 1991-2000 Period as Compared to 1980



Source: Compiled from African Development Indicators (2002)

7.6 Sequencing of Financial Reforms in Tanzania

Tanzania, like Kenya, adopted a gradualist approach to financial liberalisation. Although financial reforms in Tanzania started as early as the 1980s, active financial liberalisation only began in the 1990s. For example, interest rates were liberalised between 1993 and 1993, while credit ceilings were only removed in 1996.

Tanzania pursued internal financial liberalisation before proceeding with external financial liberalisation. The sequence of Tanzanian financial liberalisation policies was very similar to those of Kenya and South Africa, except in that, Tanzania liberalised the deposit rate before liberalising the lending rate.

In this section, a chronology of the financial reforms that have been implemented in Tanzania since 1991 is given in a tabular form. The overview covers both domestic and external financial reforms. Some of the reforms included in this study include those of interest rates, directed credit, cash reserve requirements, liquidity asset requirements, competition in the financial sector and foreign exchange market.

Sequencing of Financial Reforms in Tanzania (1991-2001)

Year	Financial Reforms
1991	<ul style="list-style-type: none"> The Banking and Financial Institutions Act was passed.
1992	<ul style="list-style-type: none"> (March) Foreign Exchange Act 1992 was enacted, replacing the Exchange Control Ordinance. Since then, individuals were allowed to hold foreign currency and maintain foreign exchange accounts at commercial banks within Tanzania.
1993	<ul style="list-style-type: none"> (April) A bureau de change market was incepted as an effort towards foreign exchange liberalisation. (July) BOT began the auctioning of foreign exchange as a tool for both liquidity management and the determination of market based exchange rates. (July) BOT removed the maximum lending rate of 31.0% for commercial banks as a step towards the liberalisation of interest rates. (August) Bureaux and official exchange rates were unified. Thereafter, forex auctions extended to include commercial banks. (August) The exchange rate system was tied to the official exchange rate set at the level of the weighted average Bureaux rate. (August) BOT commenced Treasury bill auctions with 91-day bills as a tool for financing short-term government debt. (September) Thirty-five-day Treasury bill was introduced for Treasury bill auctions. (December) In order to restrain credit expansion, BOT raised the minimum reserve requirement further from 4% to 10% during the same year. Inter-bank Exchange Market (IFEM) was introduced.

1993 (Continued)	<ul style="list-style-type: none"> • Bank interest rates were completely liberalised. • Import licensing was abolished, except for those goods required to fill the Import Declaration Form for statistical and customs clearing purposes. The requirement for exporters to register with BOT and to obtain a license from the Board of External Trade was eliminated. The list of goods subject to export permits by individual ministries was cut sharply to only those that the government wishes to control for the purpose of preserving Tanzania's national heritage.
1994	<ul style="list-style-type: none"> • (January) Capital Market and Securities Act, 1994 was enacted to promote and facilitate the development of an orderly, fair, efficient capital and securities market in Tanzania. • (January) The discount rate, the rate at which BOT accommodates commercial banks on short-term basis, was increased from 27% to 50%. Thereafter, the discount rate was adjusted bi-weekly, benchmarked on the marginal yields of the 91-day Treasury bill auctions. • (February) The 182-day Treasury bill was introduced. • (April) Minimum reserve requirement was decreased from 10% to 8%. • (June) The daily inter-bank foreign exchange market auction was introduced to replace the weekly foreign exchange auctions. • (August) The minimum interest rate on 12-month fixed deposits was abolished. Initially, the rate had to be positive in real terms. • (September) The minimum reserve requirement was increased from 8% to 12%. • (October) Computation of the discount rate was determined by the weighted average of Treasury bill auction yields for all maturities. • (December) 35-day Treasury bill was discontinued from Treasury bill auction. • (December) 364-day Treasury bill was introduced in Treasury bill auction.

1995	<ul style="list-style-type: none"> • (January) Minimum reserve requirement was increased from 12% to 15%. • (March) Capital Markets and Securities Authority was inaugurated. • (June) The minimum reserve requirement was increased from 15% to 18%. • (August) The requirement that banks and financial institutions should maintain liquidity assets not less than 20% of shillings deposit liabilities and borrowing from the public was lifted. • (August) The liquid asset ratio was abolished. • (September) The commercial banks were allowed to hold up to 50% of the statutory minimum reserve requirements in Treasury bills. The measure was aimed at enhancing financial intermediation in the economy and improving the liquidity position of commercial banks. • (October) The minimum reserve requirement was reduced from 18% to 12%. • The Bank of Tanzania Act, 1995 was passed in order to repeal and re-enact the Bank of Tanzania Act, 1965.
1996	<ul style="list-style-type: none"> • (April) The entitlement of commercial banks to hold up to 50% of their statutory minimum reserve in Treasury bills was abolished. • (July) The credit ceiling on commercial banks lending was abolished. • (July) The government reintroduced a 2% tax on traditional exports. • (July) The 10% withholding tax on income from Treasury bills was abolished. • (July) The government accepted the obligations of Article VIII section 2,3, and 4 of the IMF's Articles of Agreement. • Co-operative and Rural Development Bank (CRDB) was fully restructured and liberalised.

1997	<ul style="list-style-type: none"> • (January) Minimum cash reserve ratio was reduced from 12% to 6% - whereby cash in vaults was excluded from available reserves. • (March) Minimum cash reserve ratio was raised from 6% to 12% and included cash in vaults as part of available reserve. • (April) New banking and financial institutions regulations were gazetted and published following the review of the licensing procedures. • Insurance market was liberalised.
1998	<ul style="list-style-type: none"> • Inter-bank money market was established. • Dar-es-Salaam Stock Exchange was established.
1999	<ul style="list-style-type: none"> • (April) The new regulations, referred to as the Foreign Exchange (Bureau de Change) Regulations, 1999 were effected.
2000	<ul style="list-style-type: none"> • (March) The privatisation of National Bank of Commerce (NBC) was completed. • (July) BOT shifted from targeting M3 as intermediate indicator of domestic liquidity to M2.
2001	<ul style="list-style-type: none"> • (February) National Micro-finance policy was launched.

Source: Bank of Tanzania Bulletin (various issues); Government Reports (various issues);

7.7 Concluding Remarks

Like the previous chapters, this chapter is a discussion of issues related to Tanzanian financial liberalisation. The chapter has highlighted some of the financial reforms and development that have taken place in Tanzania since the onset of financial liberalisation. In this, the question has been whether there has been any evidence of increased savings, investment, financial depth and economic growth during the post-reform period. Some post-financial liberalisation challenges have also been discussed.

Based on the analysis presented in this chapter, the following conclusions can be drawn.

1) Compared to Kenya and South Africa, Tanzania is a late starter in the implementation of financial liberalisation policy. For example, it was only in 1994 that the minimum interest rate on fixed deposits was abolished, while the credit ceiling on commercial bank's lending was only abolished in 1996. The system is mainly bank-centred. Financial deepening and widening has not reached the expected level. The financial market is underdeveloped with a relatively small stock exchange, which was established in 1996 and only became operational in 1998. As a result, money and capital intermediaries such as dealers, brokers, discount houses and merchant banks have not developed to the level expected.

2) Despite its relatively under-developed financial sector, Tanzania has, since the 1990s, successfully implemented substantial financial reforms. For instance, interest rates are now fully liberalised, although at times still negative in real terms. The primary market has also been established. The 182 to 364-days Treasury bills are being auctioned on a regular basis, while 91-day central bank bills are also auctioned occasionally to mop up excess liquidity. All these auctions function relatively well. There is also an inter-bank market, although it is very thin, and loans are mostly un-collateral. 'Repos' and 'reverse Repos' are carried out informally, and without a master repurchase agreement. The country has also put in place basic legal framework to ensure a competitive, efficient, and

sound financial system. A competitive and efficient banking system is already emerging. The new banks have been licensed and the process of restructuring publicly owned banks is at an advanced stage. Banks have been operating in a relatively competitive environment, especially after NBC was split in 1997. The country has recently attracted a number of private banks, non-bank financial institutions and other financial institutions. Currently there are about 18 banks, 11 non-bank financial institutions, 80 foreign exchange bureaux, 11 insurance companies, two state-run pension plans and the Dar-es-salaam Stock Exchange.

3) Tanzania, like Kenya, adopted a gradualist approach to financial liberalisation. Likewise, its sequencing of the financial reforms also conforms with the standard sequence recommended for developing countries. Tanzania started pursuing financial reforms in the 1980s. However, it was only in the 1990s that fully-fledged financial reforms were implemented. This was because the country wanted to avoid a rapid or 'big bang' financial liberalisation strategy. Moreover, it was necessary for the country to attain some level of macroeconomic stability before fully liberalising its financial sector. For example, it was only in 1992 that BOT lifted its responsibility of setting interest rates (except for the maximum lending rate). In the same year, the Foreign Exchange Act 1992 was enacted and replaced the Exchange Control Ordinance. In 1993, the lending interest rate ceiling of 31% was abolished and the 91-day Treasury bill auction commenced. During the same year, a number of foreign exchange reforms were undertaken. A bureaux de change market was introduced in April 1993 as an effort towards foreign exchange liberalisation, and, in July 1993, BOT began auctioning foreign exchange. This had the joint effect of liquidity management and market-based exchange rate determination. In August 1993, bureaux and official exchange rates were unified, and thereafter forex auctions were extended to include commercial banks. In 1994, the requirement of a positive real deposit rate was abolished. A year later the liquidity asset ratio was also abolished. Credit ceiling on commercial banks lending was only abolished in 1996.

4) Tanzania's experiences with financial liberalisation have, like those of Kenya, South Africa and other sub-Saharan African countries, been mixed. Some of the post-financial liberalisation challenges in Tanzania include high interest rates, wide and expanding spread between lending and deposit rates, a systematic decline in domestic credit to the private sector, an unstable exchange rate and mixed trends in financial depth. Since the liberalisation of the financial sector, the spread between the lending and deposit rates has widened significantly. The general trend of domestic credit to the private sector has also declined dramatically from 28.62% in 1991 to 6.98% in 1998. Although savings and investment have shown positive trends since 1998, the pre-reform average savings and investment levels by and large exceed the post-reform levels. While the annual real GDP growth increased dramatically in Tanzania after financial liberalisation, the financial depth as measured by M2/GDP exhibited a mixed trend. The real GDP growth increased from 0.6% in 1992 to 3.6% in 1995 and 4.6% in 1996. By 2000, the real GDP growth reached 5.1%, the highest level in more than 10 years. The M2/GDP ratio, on the other hand, rose immediately after financial liberalisation from about 0.198 in 1990 to about 0.251 in 1995. However, it declined to about 0.184 in 1998 before increasing to 0.193 in 2000.

In conclusion, it is worth mentioning that although Kenya, South Africa and Tanzania have made significant progress towards the liberalisation of their financial sectors, the extent to which financial liberalisation has led to increased savings, financial deepening, investment efficiency and economic growth remains mixed. In addition, these effects vary from country to country. Whether financial liberalisation as originally prescribed by McKinnon (1973) and Shaw (1973) leads to increased economic growth through increased savings, financial deepening and investment efficiency, therefore, remains an empirical issue to be investigated in the chapters that follow.

CHAPTER EIGHT

ESTIMATION TECHNIQUES AND EMPIRICAL MODEL SPECIFICATION

8. Introduction

This chapter discusses the estimation techniques used in the study, as well as the theoretical and empirical model specifications, and the chapter is divided into three sections. In section one, the empirical models used in the study as well as the theories underpinning the models are presented. In section two, the techniques used to estimate the dynamic impact of financial liberalisation on economic growth in the selected countries via savings, financial deepening, and investment efficiency are specified. In the final section, section three, the data sources, and the definitions of variables used in the study are discussed.

8.1 Theoretical and Empirical Model Specification

8.1.1 Financial Liberalisation, Savings, and Economic Development

The dynamic relationship between financial liberalisation (proxied by a flexible interest rate), savings, and economic development is investigated using the McKinnon complementarity hypothesis. McKinnon's theory focuses on the response of real demand for money (broadly defined) and investment to alternative rates of returns, but under the assumption that these are the only two alternative forms of assets held by the private sector.

The McKinnon model can be summarised as follows:

$$(1) \quad M/P = L(y, r, d-P^e) \quad L_1 > 0, L_2 > 0, L_3 > 0$$

$$(2) \quad I/Y = F(r, d-P^e) \quad F_1 > 0, F_2 < 0$$

where:

M/P = real demand for monetary balances, including savings and time deposits;

y = real income;

r = rate of return on capital;

d = rate of interest on savings and time deposits;

P^e = expected rate of inflation; and

I/Y = the ratio of real investment to real income.

Under the equilibrium condition postulated by McKinnon, the ratio of desired and realised investment to income (IR) can be expressed as:

IR = minimum of:

$$(3a) IR^d = F(r, d - P^e), \quad F_1 > 0, F_2 < 0$$

$$(3b) S^d = G(r, d - P^e), \quad G_1 > 0, G_2 > 0$$

where: IR^d is the desired investment to income ratio; and S^d is the desired savings to income ratio.

Because the investment-demand function generates excess demand at the disequilibrium or negative real interest rate ($d - P^e$), it is not the operational function. Instead, S^d , a positive function of ($d - P^e$), determines the volume of loanable funds and therefore of investment. McKinnon's investment effect postulates that the realised investment actually increases because of the greater availability of funds. This conclusion, however,

applies only when the capital market is in disequilibrium, that is, in a rationing situation where the demand for funds exceeds the supply. Otherwise, the rise in the interest rate would reduce investment demand below the supply of loanable funds, causing realised investment to decline, a situation McKinnon characterised as the particular case of equilibrium corresponding to neo-classical theory (Galbis, 1979).

8.1.1.1 Estimation of McKinnon's Complementarity Hypothesis

Different models have been used in previous studies to investigate the existence of McKinnon's complementarity hypothesis in developing countries. One of the oldest empirical models for testing McKinnon's complementarity hypothesis is based on Fry (1978). Fry used McKinnon's demand for money function to test the complementarity between money and physical capital. In this model the savings ratio is determined jointly with the demand for real money balances. Fry estimates the following money demand equation:

$$(4) \quad M/P = F [S^d/Y, y^*, (d-P^*), (M/P)_{-1}]$$

where: M/P = demand for real money balances; S^d/Y = ratio of domestic savings to real national income; y^* = real income; $d-P^*$ = real interest rate; and $(M/P)_{-1}$ = lagged real money balances.

The complementarity hypothesis in this equation holds if:

$$(5) \quad \partial (M/P) / \partial (S^d/Y) > 0$$

This model however fails to test the dynamic relationship between real money demand and domestic savings.

Laumas (1990) uses the real investment function and the money demand function to test the relevance of McKinnon's complementarity hypothesis in India.

The study utilises the following models:

$$(6) \quad TD/P^d = L [Y, (I/Y)^p, d-P^*] \quad L_1 > 0, L_2 > 0, L_3 > 0$$

$$(7) \quad (I/Y)^p = F [\bar{r}, d-P^*, P^*, (I/Y)^G] \quad F_1 > 0, F_2 > 0, F_3 > 0, F_4 < 0$$

where: $(TD/P)^d$ = real demand for money, including time deposits; $(I/Y)^p$ = aggregate private investment to monetised income ratio; $(I/Y)^G$ = aggregate government investment to monetised income; Y = real monetised income; $d-P^*$ = real rate of interest on savings deposit; \bar{r} = the average real rate of return to physical capital; P^* = the expected rate of inflation; and L, F = denote functions.

Laumas's model differs fundamentally from McKinnon's complementarity model in a number of ways. Unlike McKinnon's model, Laumas uses the ratio of real investment to real monetised income instead of the average return to physical capital. The author argues that it is not possible to compute a unique average return to physical capital because of the changing heterogeneity of the Indian economy. Likewise, the author used time deposits instead of using broad money demand (M_2). However, like many other previous models used for testing McKinnon's complementarity hypothesis, this model failed to explicitly incorporate the reversibility aspect of McKinnon's complementarity hypothesis.

Thornton (1990) uses real demand for money and savings functions to test McKinnon's complementarity hypothesis. Specifically, Thornton's model can be summarised as follows:

$$(8) \quad (M/P) = f[Y/P, S^d/Y, \pi - i^e]$$

$$(9) \quad (S^d/Y) = f[M/P, \Delta(Y/P), S^f/Y, E/Y]$$

where:

M = money stock (broadly defined); P= price level; Y= nominal income; π = nominal rate of interest on bank deposits; i^e = expected rate of inflation; S^d = domestic saving; S^f =foreign saving; and E=Exports.

Following Fry (1978), Thornton substitutes the domestic savings (S^d) for investment as the finance motive in the demand for money function. The complementarity hypothesis holds if the following partial derivatives are positive:

$$(10a) \quad \partial (M/P) / \partial (S^d/Y) > 0$$

$$(10b) \quad \partial (S^d/Y) / \partial (M/P) > 0$$

Although in this study the standard McKinnon complementarity hypothesis seems to be reflected, there is a failure to establish the dynamic relationship between financial liberalisation, savings, and economic development. Moreover, time series properties such as stationarity and cointegration are not investigated.

Khan and Hasan (1998) use a cointegration and error-correction model to establish the relevance of McKinnon's complementarity model in Pakistan. The authors use the following real money demand and savings functions.

$$(11) \quad M/P = f(y, S/Y, i-P^e)$$

$$(12) \quad S/Y = g(y, yR, M/P, DR, S^f/Y)$$

where: M/P = long run real money demand; S/Y = ratio of national savings to GNP; y =real income; $(I-P^e)$ = real interest rate; yR = growth rate of real income; DR =dependency ratio; and S^f/Y = ratio of foreign savings to GNP.

The complementarity hypothesis holds true if the following partial derivatives are positive:

$$(13a) \quad \partial (M/P) / \partial (S/Y) > 0$$

$$(13b) \quad \partial (S/Y) / \partial (M/P) > 0$$

Although Khan and Hasan use cointegration and error-correction modelling techniques, the use of Engle-Granger alone as a means of testing for cointegration leaves a lot to be desired. The limitation of the Two-Stage Engle and Granger cointegration test is that it assumes that there exists a unique cointegrating vector. Yet, some models may have more than one cointegrating vector. Consequently, it is important to use the Johansen (1988) multivariate cointegration test in order to ascertain the number of cointegrating vectors.

In a more recent and influential study on the test for McKinnon's complementarity hypothesis, Kar and Pentecost (2001) use multivariate cointegration and vector error-correction models (VECM) to test the complementarity between money and capital in Turkey. In an attempt to take care of the problems associated with the estimation of McKinnon's complementarity hypothesis model, the authors estimate two systems of

equations. In the first system (system 1), the real money demand function (M/P) is estimated alongside the investment to income ratio (I/Y) function as follows:

$$(14) \quad M/P = L(Y, I/Y, R) \quad L_1 > 0; \quad L_2 > 0; \quad L_3 > 0$$

$$(15) \quad I/Y = G(DCY, R) \quad G_1 > 0; \quad G_2 > 0$$

where: M/P = demand for real money balances; Y = real income; R = real rate of interest on bank deposits; I/Y = investment to income ratio; and DCY = ratio of domestic credit to income.

The complementarity hypothesis holds in this system if:

$$(16a) \quad \partial (M/P) / \partial (I/Y) > 0$$

$$(16b) \quad \partial (I/Y) / \partial (R) > 0$$

In the second system of equations (system 2), Kar and Pentecost estimate the real money demand function alongside the private investment ratio. However, unlike in the first system, the demand for real money balances in this case is regressed on the private investment ratio (P/Y) instead of the total investment ratio (I/Y).

The system becomes:

$$(17) \quad M/P = L(Y, P/Y, R) \quad L_1 > 0; \quad L_2 > 0; \quad L_3 > 0$$

$$(18) \quad P/Y = H(G/Y, R) \quad H_1 < 0, \quad H_2 > 0$$

where: P/Y = ratio of private investment to income; and G/Y = ratio of government investment to income.

Complementarity holds in this system if:

$$(19a) \quad \partial (M/P) / \partial (Y) > 0$$

$$(19b) \quad \partial (P/Y) / \partial (G/Y) > 0$$

$$(19c) \quad \partial (P/Y) / \partial (R) > 0$$

In this model, the real return on capital has been replaced by the investment-to-income ratio (I/Y), which, as stated in the model, is expected to vary directly with the average real return on capital. The authors further argue that, since credit becomes available as financial liberalisation occurs, prior increase in money savings is not a binding constraint for an increase in investment. Consequently, the availability of credit to domestic residents will lead to a rise in the investment ratio independently of money demand. Moreover, in this model the total investment (I) is split into two, private investment (P) and public investment (G). Thus, the demand for real money balances now depends on private investment while the private investment ratio depends on the public investment among other variables. Although this model has succeeded substantially in testing the McKinnon's complementarity hypothesis using modern econometric techniques, issues relating to the reversibility of McKinnon's complementarity have not been explicitly incorporated.

Howard (2001), in an attempt to investigate the relevance of McKinnon's complementarity hypothesis in Jamaica, estimates the following equation:

$$(20) \quad \text{Log } M_t = a + b_1 \log Y_t + b_2 \log \text{GIR}_t + b_3 \text{RIR}_t + U_t$$

where: M_t = real broad money defined as currency plus demand, time, and savings deposits at commercial banks; Y_t = real GDP; GIR_t = the gross investment ratio defined as nominal gross investment as a ratio of nominal GDP; RIR_t = real deposit rate defined as a weighted average deposit rate minus the expected rate of inflation; and U_t = random disturbance term.

According to Howard:

$$(21a) \quad \partial M_t / \partial Y_t > 0$$

$$(21b) \quad \partial M_t / \partial GIR_t > 0$$

$$(21c) \quad \partial M_t / \partial RIR_t > 0$$

Although the author uses modern econometric techniques such as Johansen-Juselius cointegration and error-correction mechanism, the study has some limitations. First, the sample size used (1973-1997) is too short for a dynamic specification model of this kind. Second, the model, like other previous models, fails to incorporate the reversibility aspect of McKinnon's complementarity hypothesis.

8.1.1.2 The Model Used in the Current Study

8.1.1.2.1 Theoretical Background of the Model

The theoretical model specification of McKinnon's complementarity hypothesis can be summarised as follows:

$$(22) \quad M/P = L(Y, r, d-P^e) \quad \text{- real money demand function}$$

$$(23) \quad I/Y = F(r, d-P^e) \quad \text{- investment function}$$

where: M/P = demand for monetary balances (including savings and time deposits); Y =income; r = rate of return on capital; d = rate of interest on savings and time deposit; P^e = expected rate of inflation; and I/Y = the ratio of real investment to real income.

According to McKinnon (1973), money and physical capital (real assets) in developing countries are complements rather than substitutes. The author argues that, in the absence of deep financial markets and extensive financial intermediation in developing countries, money balances have to be accumulated before lumpier (relatively costly) and indivisible investment projects can be undertaken. The implication of this hypothesis is that the demand for real money balances (M/P) depends positively upon real income (Y), the real rate of interest on bank deposits ($d-P^e$), and the real average return on capital (r). Complementarity between capital and money in this case is represented by the positive relationship between the average real return on capital (r) and the demand for money balances.

However, for complementarity to be complete, McKinnon argues that the investment ratio (I/Y) must also be positively related to the real rate of return on money balances. This is because an increase in the real return on bank deposits ($d-P^e$), which increases the demand for money balances, will also lead to an increase in the investment ratio if real money balances are complementary to investment. Hence, the following relationships can be expected from the above equations:

$$(24a) \quad \partial (M/P) / \partial (Y) > 0$$

$$(24b) \quad \partial (M/P) / \partial r > 0$$

$$(24c) \quad \partial (M/P) / \partial (d - P^e) > 0$$

$$(24d) \quad \partial (I/Y) / \partial (r) > 0$$

$$(24e) \quad \partial (I/Y) / \partial (d - P^e) > 0$$

The complementarity will therefore hold if equations (24b) and (24e) hold.

This hypothesis is in contrast with the neo-classical approach, which postulates that money and capital are substitutes, in which case:

$$(25a) \quad \partial (M/P) / \partial (r) < 0$$

$$(25b) \quad \partial (I/Y) / \partial (d-P^e) < 0$$

According to neo-classical theory, a rise in the average rate of return on capital leads to an increase in the demand for capital goods, which reduces the demand for money, as economic agents switch demand to the relatively higher yielding real capital assets. Likewise, an increase in the real yield on money balances ($d-P^e$) leads to an increase in the demand for money, but reduces the demand for real capital assets, whose relative real return has now fallen.

8.1.1.2.2 Derivation of the Empirical Model

The main problem with McKinnon's complementarity hypothesis from the empirical perspective is the inability to compute a suitable measure of the real return on capital in developing economies¹. However, McKinnon (1973) suggests that the real return on capital could be replaced by the investment to income ratio (I/Y), which is expected to vary directly with the average real return on capital. Furthermore, in McKinnon's initial model, it is assumed that agents are unable to undertake investment, and so have to accumulate deposits before they can invest on expensive and indivisible equipments. Based on this information and on studies by Thornton (1990), and Khan and Hasan (1998), McKinnon's complementarity can be expressed as:

¹ See Kar and Pentecost, 2001.

$$(26) \quad M/P = F(y, IP/Y, d - P^e)$$

$$(27) \quad IP/Y = G(y, d - P^e, Ig/Y)$$

where: M/P = real money demand; y = real income; Y = nominal income; $d - P^e$ = real interest rate; IP/Y = the ratio of private sector investment to GNP; and Ig/Y = the ratio of public sector investment to GNP.

The complementarity hypothesis in this case holds if:

$$(28a) \quad \partial (M/P) / \partial (IP/Y) > 0$$

$$(28b) \quad \partial (IP/Y) / \partial (d - P^e) > 0$$

Equations (26) and (27) suggest that it is not the cost of capital but the availability of finance that constrains investment in financially repressed economies. When the real deposit rate increases investment increases as well, because the financial constraint is now relaxed. Moreover, McKinnon's complementarity hypothesis rests on the assumption that investment opportunities are plentiful, and thus the binding constraint is the supply of savings rather than the demand for investible funds (Fry, 1978; Thornton 1990; Nyangetera, 1997; Khan and Hasan, 1998). Consequently, domestic savings (S^d/Y) is substituted for investment as the finance motive in the demand for money function, which yields.

$$(29) \quad M/P = f(y, S^d/Y, d - P^e)$$

In order to incorporate the reversibility aspect of the complementarity relationship, the above real money demand function, equation 29, is regressed simultaneously with the following saving functions:

$$(30) \quad S^d/Y = g(y, y_R, M/P, S^f/Y, DR)$$

The above model is based on the argument that the complementarity hypothesis works both ways. The conditions of money supply have first-order impacts on the decisions to save and invest².

In order to avoid possible simultaneity problem, equations 30 and 31 are specified in a recursive log-linear form as follows:

$$(31) \quad \text{Log } M/P_t = \alpha_0 + \alpha_1 \log y_t + \alpha_2 \log(M/P)_{t-1} + \alpha_3 \log(S^d/Y)_t - \alpha_4 \log(d-P^e)_t + U_t$$

$$(32) \quad \text{Log } (S^d/Y)_t = \beta_0 + \beta_1 \log y_t + \beta_2 \log y_R_t + \beta_3 \log(M/P)_{t-1} + \beta_4 \log DR_t + \beta_5 \log(S^f/Y)_t + V_t$$

where: $(M/P)_t$ = real money demand; $(S^d/Y)_t$ = ratio of domestic savings to GDP (savings rate); Y = nominal income; y_t = real income; y_R_t = growth rate of real income. $(S^f/Y)_t$ = foreign savings to GDP ratio; DR_t = dependency ratio; $(d-P^e)_t$ = real rate of interest; and U_t, V_t = error terms.

The complementarity hypothesis will hold true if the following conditions are met.

$$(33a) \quad \partial (M/P)_t / \partial (S^d/Y)_t > 0$$

² See also Thornton, 1990; Khan & Hasan, 1998.

$$(33b) \quad \partial (S^d/Y)_t / \partial (M/P)_t > 0$$

Money Demand Function

The long run real money demand function, equation 31, is a function of real income, the savings ratio, and the real deposit rate. The inclusion of real GDP derives from monetary theory, which postulates that the demand for desired real money balances is a positive function of scale variable like real income. An increase in real income increases the transaction demand for money. Likewise, the higher the real rate of interest ($d-P^e$) the greater the accumulation of real money balances (M/P). Finally, the savings rate is included in the real money balances equation to test the complementarity hypothesis. A higher savings rate increases the demand for real money balances (M/P).

Savings Function

The rationale for including different variables in the savings function is based on the following theoretical arguments. The inclusion of real income and lagged savings variables is supported by the permanent income, relative income, and life cycle savings hypotheses. The coefficients of both variables are expected to be positive. The intertemporal optimising models such as the life cycle model suggests that a higher rate of economic growth makes the younger generation richer as compared to the older generation. A moderate effort by the younger generation to accumulate savings will therefore outweigh the potential dissaving by the older generation (Khan and Hasan, 1998).

The real money balances (M/P variables) is included in the savings function to test the complementarity hypothesis. Higher real money balances are therefore expected to increase the savings rate. In highly open economies such as Kenya, South Africa and Tanzania, the introduction of foreign savings (S^f/Y) in the savings function is easy to justify. Foreign savings assume a critical role either as a complement to or a substitute

for domestic savings. However, the impact of foreign saving (S^f/Y) on the domestic savings rate in developing countries remains controversial.

Khan and Hasan (1998) and Khan, Hasan and Malik (1994), for example, argue that foreign savings relax the resource constraint in developing countries, and may augment national savings with a time-lag via increasing income. In this case, the dynamic impact of foreign savings on the national saving may be positive. However, overwhelming evidence has been found in favour of an inverse relationship between the two savings rates. Indeed, it is usually hypothesised that high levels of foreign saving discourage the indigenous savings effort. The substitutability between foreign and domestic savings has been found in a number of empirical works, including Fry (1978, 1980), Giovanini (1985), Bowles (1987), Watson (1992), Thornton (1990) and Kendall (2000).

The dependency ratio (DR) is included to test for the influence of demographic variables on the saving rate. The rate of economic growth will have little or no effect on the savings rate if the population dependency ratio is high. Moreover, in the lifecycle model, households with more children are likely to consume more and save less at younger ages than households with few or no children³. Therefore, the higher the population dependency ratio, the lower the saving rate.

8.1.2 Financial Liberalisation and Financial Deepening

8.1.2.1 Derivation of Financial Deepening Model

In this section, the link between financial liberalisation and financial deepening is considered. The section specifies a model that tests the hypothesis that financial liberalisation leads to financial deepening. The research question in this case is whether financial liberalisation (proxied by the real interest rate) positively or negatively affects financial deepening. A positive relationship between financial liberalisation and financial

³ See also Khan and Hasan, 1998.

deepening will corroborate further the positive relationship between financial liberalisation and economic growth.

There exist at least three variants of modelling a financial deepening equation⁴. In the first variant, financial depth is regressed on the change in the real deposit rate of interest rate, the change in the real income, and the lagged value of the financial depth.

This variant can be expressed as:

$$(34) \quad \Delta \text{Log}(m)_t = f[\Delta \text{Log } y_t, \Delta(d-P^e)_t, \Delta \text{Log}(m)_{t-1}]$$

where: $\Delta \text{Log } m_t$ = is the logarithm of the financial deepening variable measured by the financial depth; $\text{Log } y_t$ = is the logarithm of real income; $(d - P^e)_t$ = is the real deposit rate of interest; and $\Delta \text{Log}(m)_{t-1}$ = is the logarithm of the lagged value of the financial depth.

The expected signs of the independent variables in this model are:

$$(35a) \quad \partial \text{Log}(m)_t / \partial \text{Log } y_t > 0$$

$$(35b) \quad \partial \text{Log}(m)_t / \partial \text{Log}(d - P^e)_t > 0; \text{ and}$$

$$(35c) \quad \partial \text{Log}(m)_t / \partial (m)_{t-1} > 0$$

This model, however, has shortcomings. The model's main shortcoming is in the aggregation of different components of real money balances with varying opportunity costs. As Ikhude (1992) puts it, by lumping together non-income earning assets like currency and demand deposits and income earning financial assets like savings and time

⁴ See Ikhude, 1992.

deposits, a problem is created due to aggregation bias. Moreover, it has been argued that the relevant opportunity cost of holding currency and demand deposits may not be the real interest rate on savings, but rather other short-term rates on quick-maturing money market instruments such as Treasury bills⁵. To take cognisance of this, a second variant of financial deepening can be expressed as follows.

$$(36) \quad \Delta \log (D_i/Y)_t = f [\Delta \log Y_t, \Delta (d-P^e)_t, \Delta \log (D_i/Y)_{t-1}]$$

where: D_i = different classes of financial assets e.g. currency, demand deposits, savings, and time deposits; and Y = nominal GDP

The expected signs of this model are:

$$(37a) \quad \partial \log (D_i/Y)_t / \partial \log (\log Y)_t > 0;$$

$$(37b) \quad \partial \log (D_i/Y)_t / \partial \log (D_i/Y)_{t-1} > 0; \text{ and}$$

$$(37c) \quad \partial \log (D_i/Y)_t / \partial (d - P^e)_t > 0$$

Although this variant is an improvement on the first variant, a further adjustment can be made by splitting the real deposit rate of interest $(d-P^e)$ into its two components i.e. nominal deposit rate (d) and expected inflation (P^e) . This will enable the model to capture the impact of inflation on the various components of money. Moreover, there has been an argument that inflation adversely affects the holding of all classes of financial assets, and not just a narrow class. In addition, it has been argued that inflation will tend to encourage the holding of currency, and discourage the holding of quasi-money. This third variant of financial deepening model can be expressed as:

⁵ See also Gupta, 1984.

$$(38) \quad \Delta \log (Di/y)_t = f [\Delta \log y_t, \Delta \log (d)_t, \Delta \log (P^e)_t, \Delta \log (Di/y)_{t-1}]$$

With the expected signs as:

$$(39a) \quad \partial \log (Di/y)_t / \partial \log (d)_t > 0$$

$$(39b) \quad \partial \log (Di/y)_t / \partial \log (P^e)_t > 0 \text{ or } < 0$$

8.1.2.2 The Empirical Model Used in the Current Study

The empirical model used in the current study is based on equations 34 and 38. In this model, the financial deepening variable is regressed on real income, the nominal interest rate and the inflation rate.

The model can be expressed as:

$$(40) \quad \text{Log } (m)_t = \beta_0 + \beta_1 \log y_t + \beta_2 \log d_t + \beta_3 \log P^e_t + \beta_4 \log (m)_{t-1} + E_t$$

where: m_t = is the financial depth; y_t = is the real income; d_t = is the deposit rate of interest (nominal); and P^e_t = is expected inflation.

Financial deepening will therefore hold if:

$$(41a) \quad \partial \log (m)_t / \partial \log y_t > 0$$

$$(41b) \quad \partial \log (m)_t / \partial (d)_t > 0$$

The expected sign of the expected inflation (P^e) variable is:

$$(42) \quad \partial \log(m)_t / \partial \log(P^e)_t > 0 \text{ or } < 0$$

8.1.3 Financial Liberalisation and Investment Efficiency

8.1.3.1 Derivation of the Model

This section tests the hypothesis that a rise in the real rate of interest induced by financial liberalisation increases the average efficiency of investment (measured as the incremental output capital ratio). Specifically, higher real interest rates raise the supply of financial savings and credit availability, thereby facilitating both investment volume and efficiency.

Unfortunately, there have been few studies relating directly to the impact of financial liberalisation on the efficiency of investment. Yet, the empirical proposition is that increased real interest rates raise both the quantity and quality of the investment, which leads to an increase in economic growth. Empirical studies that have been conducted on this subject regressed the incremental output capital ratio (IOCR) on the real deposit rate of interest in a model that can be expressed as:

$$(43) \quad \text{IOCR}_t = f(d - P^e)_t$$

The investment efficiency will hold if

$$(44) \quad \partial (\text{IOCR})_t / \partial (d - P^e)_t > 0$$

8.1.3.2 Empirical Model Specification

The empirical model used in this study to test the impact of financial liberalisation on investment efficiency is based on Nyangetera (1997), Ikhide (1992) and Fry (1979). The incremental output-capital ratio is regressed on the real deposit rate of interest, real exchange rate and foreign savings ratio as follows:

$$(45) \quad \text{IOCR} = f[(d - P^e), S^f/Y, \text{Rexr}].$$

The model can be specified as:

$$(46) \quad \text{IOCR}_t = \lambda_0 + \lambda_1 (d - P^e)_t + \lambda_2 (S^f/Y)_t + \lambda_3 \text{Rexr}_t + E_t$$

where: IOCR = incremental output-capital ratio; $d - P^e$ = real deposit rate of interest; S^f/Y = foreign savings ratio; Rexr = real exchange rate; and E_t = error term.

The evidence of investment efficiency will be achieved if:

$$(47a) \quad \partial (\text{IOCR})_t / \partial (d - P^e)_t > 0$$

The expected signs of other variables are as follows:

$$(47b) \quad \partial (\text{IOCR})_t / \partial (S^f/Y)_t > 0$$

$$(47c) \quad \partial (\text{IOCR})_t / \partial (\text{Rexr})_t > 0$$

The incremental output capital ratio (a measure for investment efficiency) in this case is proxied by the ratio of gross domestic investment to gross domestic product (GDP). The real exchange rate variable has been included in the above model because the depreciation of the real exchange is expected to improve capacity utilisation of existing investment, which improves firm profitability, and hence efficiency of investment. The coefficient of the real exchange rate is therefore expected to be positive. The foreign savings rate on the other hand is expected to ease the foreign exchange constraint, thereby facilitating the fuller utilisation of existing capital equipment. Consequently, its coefficient is expected to be positive⁶.

An increase in the interest rate is expected to raise the efficiency of investment because when interest rates are high, only projects with higher rates of return will be selected. On the other hand, a decrease in the interest rate is likely to be accompanied by a decrease in investment efficiency because when interest rates are low, low-yielding projects (i.e. projects with low rates of return) will be attracted. However, this is based on the following assumptions: (i) that investments are properly evaluated before undertaken; and (ii) that interest rates are driven by market fundamentals. In many circumstances, especially during financial turmoil, high interest rates are often induced by high-risk premium or default premium instead of market forces. Under these circumstances, an increase in interest rates may reduce rather than increase the average efficiency of investment.

Although the conventional linkage between the interest rate and investment efficiency maintains that an increase in interest rates increase the average efficiency of investment, there is a possibility that the reverse causality can also take place. This is to say that it may be also true that if the average efficiency of investment increases, then real interest

⁶ See also Nyangetera, 1997.

rates also rise. This analysis, however, is beyond the scope of this study and has been ignored.

8.1.4 Financial Development and Economic Growth

The link between financial liberalisation and economic growth via savings, financial deepening, and investment efficiency cannot be complete if financial development, which results from financial liberalisation, does not lead to economic growth. In other words the impact of financial liberalisation on economic growth through increased savings, financial deepening, and investment efficiency cannot be ascertained if financial development does not Granger cause economic growth. Financial development in this case can be broadly defined as an increase in the volume of financial services of banks and other financial intermediaries as well as of financial transactions on capital markets (Graff, 1999).

There are *a priori* four possibilities concerning the causal relationship between financial development and economic growth (Graff, 1999). The first possibility is that financial development and economic growth are not causally related. This implies that neither of the two has considerable effects on the other, and that the empirically observed correlation between them is merely the result of a historical peculiarity. In other words, even though economies grow as the financial sector grows, the two sectors, financial development, and economic growth follow their own logic. That is to say that the real sector is governed by the real factors, whereas the financial sector is rooted in the history of financial institutions.

The second possibility is that financial development follows economic development. In other words, economic growth causes financial institutions to change and develop, and financial as well as credit markets to grow. Financial development in this case is considered as demand-driven. This implies that as the growing scale of economic activities requires more and more capital (liquid and fixed), institutional raising and

pooling of funds for industry are substituted for individual fortunes to start up enterprises, and for retained profits for economic expansion (Graft, 1999).

In the third possibility, financial development is considered as a determinant of economic growth. In this case, the line of causation runs from financial development to real development. This hypothesis can be dichotomised into two. First, financial development can be considered as a precondition for economic growth. Here inadequate financial systems are considered as major impediments to economic growth. This is the view that is held by most economists. The second view is that financial development actively promotes economic growth. In other words, as long as there are no real impediments to economic development, sophisticated financial systems can generate high and sustained rates of economic growth. This view attaches the highest importance to financial development.

The fourth possibility, however, considers financial development as an impediment to economic growth. The line of causation here, just like in the third hypothesis, runs from financial development to real development, but the focus lies on the potentially destabilising effects of financial overtrading and crises rather than on the smooth functioning of the financial system. This view conceives financial systems to be naturally unstable⁷.

8.1.4.1 Empirical Model Specification

The causality model used in this study originates from the Granger's definition of causality. The Granger definition of causality is based on the notion that the future cannot cause the past but the past can cause the future. The Granger definition is that X causes Y , given R_t , if Y_{t+1} can be predicted better using past values of X ($X_s, S \leq t$) than

⁷ For a classic classification of the types of causation between financial development and economic growth, see Graff (1999).

by not using it. Where: R_t = is the universe of information up to and including period (t). That is, compare the forecasting ability of R_t with and without X: If past values of X significantly, contribute to forecasting y_{t+1} , then X is said to Granger cause Y. Similarly, the causality from Y to X can be defined in the same way.

Using the financial development (FD) and economic growth (y) variables, it can be stated that: If 'FD causes y', then changes in FD should precede changes in y. In other words, for FD to Granger cause y, two conditions must be met. First, FD should help predict y, i.e. in a regression of y against past values of FD and y as independent variables, FD should contribute significantly to the explanatory power of the regression. Secondly, y should not help predict FD. If FD helps to predict y and y helps to predict FD, then it is more likely that one or more variables are in fact, causing both FD and y.

In order to test whether these conditions hold, the null hypothesis that the financial development variable (FD) included in the model does not help predict economic growth, the values of y and lagged values of FD are regressed in the unrestricted regression, and then y is regressed only against lagged values of y in the restricted regression. This can be expressed in log linear form as follows:

$$(48) \quad \text{Log } y_t = \sum_{i=1}^m \alpha_{1i} \log y_{t-i} + \sum_{i=1}^m \beta_{1i} \log \text{FD}_{t-i} + E_{1t} \quad (\text{Unrestricted Regression})$$

$$(49) \quad \text{Log } y_t = \sum_{i=1}^m \alpha_{2i} \log y_{t-i} + E_{2t} \quad (\text{Restricted Regression})$$

Similarly, the null hypothesis that economic growth, y, does not cause financial development (FD)_t is tested in the same format.

$$(50) \quad \text{Log FD}_t = \sum_{i=1}^m \alpha_{3i} \log \text{FD}_{t-i} + \sum_{i=1}^m \beta_{3i} \log Y_{t-i} + E_{3t} \quad (\text{Unrestricted})$$

$$(51) \quad \text{Log FD}_t = \sum_{i=1}^m \alpha_{4i} \log \text{FD}_{t-i} + E_{4t} \quad (\text{Restricted Regression})$$

8.2 Estimation Techniques

8.2.1 Introduction

In this section, the techniques used to estimate the dynamic relationship between financial liberalisation and economic growth in the selected countries via savings, financial deepening, and investment efficiency are specified. Throughout this study, a dynamic specification associated with Error-Correction Modelling (ECM) is used. By using error-correction modelling the study is able to establish both the short-run and long run relationships between financial liberalisation, savings, financial deepening, investment efficiency, and economic growth in the selected SSA countries. In this study, the Two-Stage Engle-Granger cointegration method and the Johansen-Juselius (1992) maximum likelihood test are used concurrently. However, before variables are subjected to cointegration tests, the order of integration must be ascertained. For this purpose, the study uses the standard Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF), and Sargan-Barghava – Durbin Watson (SBDW) class of tests.

8.2.2 A Summary of the Empirical Model Used in the Study

In total, a system of six equations is used in this study to empirically test the impact of financial liberalisation on economic growth. The first two equations in the system (model 1) is the McKinnon complementarity hypothesis model, which incorporates the real money demand function and savings function. The model can be expressed as:

Model 1: McKinnon's Complementarity Model

$$(52) \quad \text{Log}(M/P)_t = \alpha_0 + \alpha_1 \log y_t + \alpha_2 (M/P)_{t-1} + \alpha_3 (S^d/Y)_t + \alpha_4 \log(d-P^e) + U_t$$

$$(53) \quad \text{Log}(S^d/Y)_t = \beta_0 + \beta_1 \log y_t + \beta_2 \log y_R + \beta_3 \log(M/P)_{t-1} + \beta_4 \log DR + \beta_5 \log(S^f/Y)_t + V_t$$

The third and fourth equations (models 1 and 2) represent the financial deepening and investment efficiency equations. The McKinnon's complementarity between money and physical capital cannot be sustained if financial liberalisation proxied by the real deposit rate does not lead to financial deepening and investment efficiency. These equations can be expressed as:

Model 2: Financial Deepening Model

$$(54) \quad \text{Log } (m)_t = \lambda_0 + \lambda_1 \log y_t + \lambda_2 \log (d)_t + \lambda_3 \log P_t^e + \lambda_4 \log (m)_{t-1}$$

Model 3: Investment Efficiency Model

$$(55) \quad \text{IOCR}_t = \rho_0 + \rho_1 (d-P^e)_t + \rho_2 S^f/Y_t + \rho_3 \text{Rexr}_t + E_t.$$

The fifth and sixth equations constitute the causality model between financial development and economic growth. Financial liberalisation can only unambiguously lead to economic growth if financial development, which results from financial liberalisation Granger causes economic growth. This model can be expressed as:

Model 4: Financial Development and Economic Growth Causality Model

$$(56) \quad \text{Log } y_t = \sum_{i=1}^m \alpha_{li} \log Y_{t-i} + \sum_{i=1}^m \beta_{li} \log \text{FD}_{t-i} + E_t.$$

$$(57) \quad \text{Log } \text{FD}_t = \sum_{i=1}^m \beta_{2i} \log \text{FD}_{t-i} + \sum_{i=1}^m \alpha_{2i} \log Y_{t-i} + E_{2t}$$

8.2.3 Estimation Technique for Models One, Two and Three

8.2.3.1 Unit Root Tests

It is now a well-known fact that most macro-economic time series data are non-stationary. When time series data are non-stationary, spurious correlation is likely to occur and in such a case, further inference is meaningless (Granger and Newbold, 1974). The purpose of a unit root test is to statistically test the data generating process for difference-stationary (trend non-stationarity) against trend-stationarity. A trend stationarity in this case refers to a stationary time series process, which has been derived by removing the linear or exponential trend from the non-stationary series. A difference stationary series, on the other hand, refers to a stationary time series process, which has been derived by differencing a non-stationary series. Some of the unit root tests commonly used in econometric analysis include the conventional Dickey-Fuller (DF), the Augmented Dickey-Fuller (ADF), and the Sargan – Bhargava - Durbin – Watson (SBDW).

8.2.3.1.1 Dickey – Fuller (DF) Tests

The conventional Dickey-Fuller test can be expressed as follows.

$$(58) \quad \Delta X_t = \alpha_0 + \alpha_1 X_{t-1} + e_t \text{ (Without trend)}$$

$$(59) \quad \Delta X_t = \alpha_0 + \alpha_1 X_{t-1} + \alpha_2 T + e_t \text{ (With trend)}$$

where: X_t = the variable of interests; Δ = the difference operator α and β are parameters to be estimated; and T = time;

The null hypothesis (H_0) is:

$$(60a) \quad X_t \sim I(0)$$

While the alternative hypothesis (H_i) is:

$$(60b) \quad X_t \sim I(1)$$

The rejection of the null hypothesis of non-stationarity requires a negative and significant test statistic.

8.2.3.1.2. The Augmented Dickey-Fuller (ADF)

It has been discovered that Dickey-Fuller (DF) tests fail to take into consideration the possible autocorrelation in the error process. The Ordinary Least Squares (OLS) estimates of the variants of Dickey-Fuller tests will be inefficient if the error term is autocorrelated. As a solution to this problem, the following Augmented Dickey-Fuller test is employed.

$$(61) \quad \Delta X_t = \alpha_0 + \alpha_1 + \alpha_1 X_{t-1} + \sum_{i=1}^k \beta_i \Delta X_{t-1} + e_t. \quad (\text{Without trend})$$

$$(62) \quad \Delta X_t = \alpha_0 + \alpha_1 + \alpha_1 X_{t-1} + \alpha_2 T + \sum_{i=1}^k \beta_i \Delta X_{t-1} + e_t. \quad (\text{With trend})$$

where: α_1 , β , and λ are parameters to be estimated.

If the calculated t-ratio of coefficient β with negative sign is less than its critical value from Fuller's table, then X_t is said to be stationary or integrated of order 1, that is $X \sim I(1)$.

8.2.3.1.3. Sargan–Bhargava Durbin Watson Test for Stationarity (SBDW)

Sargan Bhargava Durbin Watson (SBDW) is a quick guide for establishing whether a variable is stationary or not. That is, whether a variable is integrated of order one I (1) or order zero

I (0)

SBDW statistics can be calculated as:

$$(63) \quad \text{SBDW}(Y) = \sum (Y_t - Y_{t-1})^2 / \sum (Y_t - Y_t^{\min})^2$$

where: Y_t^{\min} = arithmetic mean of the variable; and

Y_{t-1} = lagged value of Y_t

Low values of SBDW are evidence of I (1) while high values are of I (0) series. Specifically, values of SBDW, which are less than the critical value, will lead to the rejection of the null hypothesis, hence non-stationarity. On the other hand, those higher than the critical value will imply acceptance of the null hypothesis and hence stationarity.

8.2.3.2 Cointegration Analysis

If the variables in models one, two and three are confirmed to be integrated of the same order, i.e. I (1), then the next step would be to test whether the variables are cointegrated. The basic idea behind cointegration is that if the dependent variable is integrated of order $d > 0$, and at least one regressor is also integrated of the same order, then cointegration leads to stationary residual (Hall, 1986). Lack of cointegration means that the residual has the same stochastic trend as the dependent variable. This means that the integrated properties of the dependent variable will, in the absence of cointegration, pass through the equation to the residual.

Specifically, the theory of cointegration states that, if $X(t)$ and $Y(t)$ are both integrated of order one, $I(1)$, but their linear combination $Z(t) = Y(t) - AX(t)$ is stationary or $I(0)$, then $X(t)$ and $Y(t)$ are said to be cointegrated.

There exist at least three alternative approaches for testing cointegration in the literature. These are the two-step procedure developed by Engle and Granger (1987) in a bivariate setting and extended by Johansen (1988) as a system approach, and by Stock and Watson (1988) as a dynamic OLS procedure to a multivariate framework. However, in this study the emphasis is mainly on the Engle-Granger (1987) two-step method and Johansen-Juselius VAR method.

8.2.3.2.1 Engle-Granger (1987) Two-Step Cointegration Method

The Engle-Granger cointegration test has essentially two steps. In the first step, static long-run equations are estimated for cointegration regression with variables of the same order of integration. The estimated cointegration regression is of the form.

$$(64) \quad Y_t = \alpha + \beta X_t + E_t$$

The second step is to test for the stationarity of the residuals E_t derived from the regression. If the residuals are non-stationary, then the variables are said to be non-cointegrated and vice versa. In other words, if $Y_t, X_t \sim I(1)$, and E_t can be shown to be $I(0)$, then the set of variables Y_t and X_t cointegrates. The stationarity test performed on the residual E_t is based on the following DF and ADF equations.

$$(65) \quad \Delta E_t = \phi_0 + \phi_1 E_{t-1} + V_t \quad \text{DF}$$

$$(66) \quad \Delta E_t = \phi_0 + \phi_1 E_{t-1} + \sum_{i=1}^k \phi_i \Delta E_{t-i} + V_t \quad \text{ADF}$$

where: E_t = residuals from the cointegration regressions.

The null hypothesis of non-stationarity stands to be rejected if:

- (i) $\phi < 0$; and
- (ii) The calculated DF and ADF statistics are less than the critical values from Fuller's table.

8.2.3.2.2 SBDW Test For Cointegration

The Sargan-Bhargava-Durbin Watson test for cointegration involves computing SBDW statistic for the estimated derivation from a long-run path, which under cointegration are stationary.

SBDW is defined as:

$$(67) \quad \text{SBDW}(E_t) = \frac{\sum (E_t - E_{t-1})^2}{\sum (E_t - E_t^{\min})^2}$$

where:

- E_t^{\min} = arithmetic mean for the residual E_t .
- E_{t-1} = lagged value of the residual (E_t).

The hypothesis that the series are cointegrated is rejected if SBDW is smaller than the critical value and vice versa. This is to say that if the SBDW statistic computed for the residuals from the static model, representing a long-run relationship is close, higher, or equal to critical value, then there exists cointegration among the variables.

8.2.3.2.3 Johansen-Juselius (JJ) Cointegration Method

Although the Engle-Granger (1987) residual-based ADF test is one of the most commonly used cointegration tests, Johansen (1988, 1991) and Johansen and Juselius' (1990) approach is considered superior to the Engle-Granger method for the following reasons:

- i) If a multiple cointegrating vector exists, then the use of the Engle-Granger method may simply produce a complex linear combination of all distinct cointegrating vectors that cannot be sensibly interpreted. In other words, the Engle-Granger method assumes that the cointegrating vector is unique, which is normally not the case.
- ii) The Engle-Granger method relies on a super convergence result, and applies OLS in order to obtain parameter estimates of the cointegrating vector. However, OLS parameter estimates may vary with the arbitrary normalisation implicit in the selection of the left hand side variable for the OLS regression.

As opposed to the Engle-Granger approach, the Johansen-Juselius method provides a unified framework for the estimation and testing of cointegrating relations in the context of VAR error-correction models. The method, therefore, has the advantage of making all the variables explicitly endogenous. In addition, the Johansen-Juselius method does not rely on an arbitrary normalisation. The procedure thus allows for the testing of certain restrictions suggested by economic theory, such as the sign and size of the elasticity estimates.

The multivariate cointegration test proposed by Johansen (1988) can be expressed as⁸:

⁸ See also Kar and Pentecost (2000); Kogar (1995).

$$(68) \quad X_t = \Gamma_0 + \Gamma_1 \Delta X_{t-1} + \Gamma_2 \Delta X_{t-2} + \dots + \Gamma_{p-1} \Delta X_{t-p} + \Pi X_{t-p} + \varepsilon_t$$

where:

For Model One: McKinnon's Complementarity Hypothesis Model

$$(69) \quad X_t = [M/P, y, S/Y, d-P^e, yR, DR, S^f/Y];$$

X = is a 7x1 vector of variables that are integrated of order one [i.e. $I(1)$];

Γ = is a 7x7 matrix of coefficients;

Π = 7x7 matrix of parameters; and

ε_t = is a vector of normally and independently distributed error term.

The presence of r cointegrating vectors between the elements of X , implies that Π is of the rank r ($0 < r < 7$) and hence Π can be decomposed as:

$$(70) \quad \Pi = \alpha \beta'$$

where:

α = is the matrix of cointegrating vectors;

β = is the adjustment matrix; and

α and β = are $7 \times r$ matrices.

Model 2 Financial Deepening Model

$$(71) \quad X_t = [m, y, d, P^e, m_{t-1}]$$

X = is a 5×1 vector of variables that are integrated of order one [i.e. $I(1)$];

Γ = is a 5×5 matrix of coefficients;

Π = 5×5 matrix of parameters; and

ε_t = is a vector of normally and independently distributed error term.

The presence of r cointegrating vectors between the elements of X , implies that Π is of the rank r ($0 < r < 5$) and hence Π can be decomposed as:

$$(72) \quad \Pi = \alpha \beta'$$

where:

α = is the matrix of cointegrating vectors;

β = is the adjustment matrix; and

α and β = are $5 \times r$ matrices.

Model 3: Investment Efficiency Model

$$(73) \quad X_t = [\text{IOCR}, d-P^e, S^f/Y, \text{RExr}]$$

X = is a 4×1 vector of variables that are integrated of order one [i.e. $I(1)$];

Γ = is a 4×4 matrix of coefficients;

Π = 4×4 matrix of parameters; and

ε_t = is a vector of normally and independently distributed error term.

The presence of r cointegrating vectors between the elements of X , implies that Π is of the rank r ($0 < r < 4$) and hence Π can be decomposed as:

$$(74) \quad \Pi = \alpha \beta'$$

where:

α = is the matrix of cointegrating vectors;

β = is the adjustment matrix; and

α and β = are $4 \times r$ matrices.

The above equations in models 1,2 and 3 can now be written as:

$$(75) \quad X_t = \Gamma_0 + \Gamma_1 \Delta X_{t-1} + \Gamma_2 \Delta X_{t-2} + \dots + \Gamma_{p-1} \Delta X_{t-p} + \alpha(\beta' X_{t-p}) + \varepsilon_t$$

The rows of β are interpreted as distinct cointegrating vectors such that $\beta' X_t$ form linear stationarity process and α 's are the vector error-correction coefficients. The problem with the β 's presented in the above equation is that they are unrestricted, and hence this system cannot identify typical long-run economic relationships. Each vector therefore requires at least r restrictions, one of which is the normalisation restriction. These normalisation restrictions must be motivated by economic theory so that the identified cointegrating vectors can be interpreted as long-run economic relationships.

8.2.3.2.4 Trace Test and Maximum Eigenvalue Test

The Johansen and Juselius method uses two tests to determine the number of cointegrating vectors, namely the 'Likelihood Ratio Trace test-LRT' and the 'Maximum Eigen value test - ME'.

The likelihood trace statistics can be expressed as:

$$(76) \quad LRT = -T \sum_{i=r+1}^n \ln(1 - \mu_i)$$

The null hypothesis in this case is that the number of cointegrating vectors is less than or equal to r , where r is 0, 1, or 2..., etc. In each case, the null hypothesis is tested against the general hypothesis. That is, the full rank $r = n$.

The maximum eigenvalue test on the other hand is expressed as:

$$(77) \quad ME = -T \ln(1 - \hat{\mu}_r)$$

In this case, the null hypothesis of the existence of r cointegrating vector is tested against the alternative of $r+1$ cointegrating vectors. If there is any divergence of results between the trace test and the maximum eigenvalue test, it is advisable to rely on the evidence based on the maximum eigenvalue test because the latter is more reliable in small samples (Dutta and Ahmed, 1997; Banerjee et al, 1993).

8.2.3.3 Error-Correction Modelling of Models One, Two and Three

Upon the confirmation of stationarity conditions and the existence of at least one cointegrating vector in the equations represented in models one, two and three, the next step is to choose that cointegrating vector that seems to make more 'economic' sense. In this study, a dynamic specification model associated with error-correction model is employed. The advantage of using an error-correction model is that it allows the dynamics of both short-run changes and long-run adjustment processes to be modelled simultaneously. The error-correction model was first introduced by Sargan (1964) and was subsequently popularised by papers of Davidson et al (1978), and Hendry et al (1984). The recent work of Granger (1983, 1986, 1988) and Engle-Granger (1987) on cointegration significantly revived its popularity. In the Engle-Granger cointegration-based error-correction model, the residuals from the preferred cointegrating vectors are used as error-correction terms (ECMs) in the dynamic model.

The coefficient of the error-correction term indicates the speed of adjustment of any disequilibrium towards a long-run equilibrium state. The low coefficient of the error-correction term indicates the low speed of adjustment with a prolonged period of disequilibrium.

In this study, the equations in models one, two and three can be re-parameterised into an error-correction model as follows.

Model One

$$(78) \quad \Delta \text{Log (M/P)}_t = \alpha_{11} + \alpha_{1i} \Delta Z_t + \lambda_1 \text{ECM}_{1-1} + E_t$$

$$(79) \quad \Delta \text{Log (S/Y)}_t = \alpha_{22} + \alpha_{2i} \Delta Y_t + \lambda_2 \text{ECM}_{2-1} + E_t$$

Model 2

$$(80) \quad \Delta \text{Log (10CR)}_t = \alpha_{33} + \alpha_{3i} \Delta X_t + \lambda_3 \text{ECM}_{3-1} + E_t$$

Model 3

$$(81) \quad \Delta \text{Log (m)}_t = \alpha_{44} + \alpha_{4i} \Delta W_t + \lambda_4 \text{ECM}_{4-1} + E_t$$

where:

Z_t = vector variables in real money demand function;

Y_t = vector of variables in the savings function;

X_t = vector of variables in the investment function (IOCR);

W_t = vector of variables in the financial deepening function;

ECM_{1-1} ; ECM_{2-1} ; ECM_{3-1} ; ECM_{4-1} are error-correction terms lagged one period;

E_t = white noise process error term; and

IOCR = incremental output capital ratio.

The above model, however, requires dynamics since adjustment is not instantaneous.

In order to capture dynamics, which are not instantaneous, the above model is re-parameterised in an autoregressive form of order – K [AR (K)] in order to capture dynamics, which are not instantaneous.

The over-parameterised (general) model can be expressed as:

Model One

$$(82) \quad \Delta \text{Log} (M/P)_t = \beta_{11} + \sum_{i=1}^n \psi_{1i} \Delta (M/P)_{t-i} + \sum_{j=1}^m \partial_{2j} \Delta Z_{t-j} + \delta_1 \text{ECM}_{1-1} + E_t$$

$$(83) \quad \Delta \text{Log} (S/Y)_t = \beta_{22} + \sum_{i=1}^n \psi_{2i} \Delta (S/Y)_{t-i} + \sum_{j=1}^m \partial_{3j} \Delta Y_{t-j} + \delta_2 \text{ECM}_{2-1} + E_t$$

Model Two

$$(84) \quad \Delta \text{Log} (m)_t = \beta_{44} + \sum_{i=1}^n \psi_{4i} \Delta (m)_{t-i} + \sum_{j=1}^m \partial_{5j} \Delta W_{t-j} + \delta_4 \text{ECM}_{4-1} + E_t$$

Model Three

$$(85) \quad \Delta \text{Log} (10\text{CR})_t = \beta_{33} + \sum_{i=1}^n \psi_{3i} \Delta (10\text{CR})_{t-i} + \sum_{j=1}^m \partial_{4j} \Delta X_{t-j} + \delta_3 \text{ECM}_{3-1} + E_t$$

where:

Z_t = vector variables in real money demand function;

Y_t = vector of variables in the savings function;

X_t = vector of variables in investment function (IOCR);

W_t = vector of variables in the financial deepening function;

ECM_{1-1} ; ECM_{2-1} ; ECM_{3-1} ; ECM_{4-1} are error-correction terms lagged one period; and

E_t = white noise process error term.

The next step now is to proceed with the simplification process of these over-parameterised models in order to make them more interpretable and certainly more

parsimonious. The first step in this simplification process is to set certain parameters, starting with those with 't' values less than one and zero in absolute terms to zero. The main reason behind this reduction sequence is to seek to maximise the goodness of fit of the model with the minimum number of variables.

The final step is to reassess the model in terms of the diagnostic tests such as residual autocorrelation, normality, and heteroskedasticity. The main purpose is this is to ensure data admissibility, and to investigate whether the model is consistent with the theory and, if not, why?

8.2.4 Estimation Technique For Model 4: Financial Development and Economic Growth Model

In this section, the estimation technique for the causal relationship between financial development and economic growth is presented. In this study, a long-run causality model pioneered by Engle and Granger (1987) and Granger (1986) is used. Granger (1988) argues that if a set of variables is stationary or cointegrated, a causality test can be conducted.

The Granger causality test method is chosen in this paper over other alternative techniques because of its favourable response to both large and small samples. Guilkey and Salemi (1982), and Geweke, Mesee, and Dent (1983) for example, have all shown that the Granger test outperforms the other methods in both large and small samples. Other alternative test procedures, which have been suggested in the literature, include Sims (1972), Pierce and Haugh (1977), and Geweke (1982), among others.

The conventional Granger causality test involves the testing of the null hypothesis that FD_t does not cause Y_t , and vice versa by simply running the following two regressions.

$$(86) \quad Y_t = \mu + \sum_{i=1}^m \alpha_{1i} Y_{t-i} + \sum_{j=1}^n \beta_{1j} FD_{t-j} + n_1$$

$$(87) \quad FD_t = \beta + \sum_{i=1}^m \alpha_{2i} Y_{t-i} + \sum_{j=1}^n \beta_{2j} FD_{t-j} + n_2$$

where: Y_t = economic growth variable; FD = financial development variable; n_1, n_2 = white noise error process; and m, n = denote the number of lagged variables.

The Null hypothesis that FD_t does not Granger cause Y_t is rejected if B_{js} are jointly significant (Granger (1969)).

However, the traditional causality tests suffer from the following two methodological deficiencies. First, these standard tests do not examine the basic time series properties of the variables. If the variables are cointegrated, then these tests incorporating differenced variables will be mis-specified unless the lagged error-correction term is included (Granger, 1988). Second, these tests turn the series stationary mechanically by differencing the variables, and consequently eliminate the long-run information embodied in the original form of the variables.

As opposed to the conventional Granger causality method, the error-correction based causality test allows for the inclusion of the lagged error-correction term derived from the cointegration equation. By including the lagged error-correction term, the long-run information lost through differencing is reintroduced in a statistically acceptable way.

8.2.4.1 Hsiao's Version of the Granger Causality Method

In the traditional Granger Causality model, a common lag length is imposed on all variables and across all observation periods. Earlier studies such as Von Furstenberge et al (1986), Anderson, et al (1986), Joulfaian and Mookerjee (1990), Ram (1988), and Baghestani and McNown (1994), among others, arbitrarily choose the lag lengths. The

use of common (or ad hoc) lag length for all variables is problematic, and can produce biased results if some variables exhibit different lag specification.

Hsiao (1979,1981), therefore, proposes a test procedure that combines both Akaike's (1969a, 1969,b) final prediction error (FPE) and Granger's (1969) definition of causality to determine the optimum lag for each variable and the causal relationships⁹. In the first step of Hsiao's procedure, a series of autoregressive regressions is performed on the dependent variable, beginning with one lag and adding one more lag in each succeeding regression. That is, for the growth variable m regressions of the following form are estimated:

$$(88) \quad Y_t = \mu + \sum_{j=1}^m \alpha_{t-j} Y_{t-j} + \varepsilon_t$$

The value of m in the above equation ranges from 1 to m , where m is the maximum lag length. For each regression, FPE is computed in the following manner.

$$(89) \quad FPE(m) = (T + m + 1) / (T - m - 1) * SSE(m) / T$$

In the above equation, T is the sample size, and $FPE(m)$ and $SSE(m)$ are the final prediction error and the sum of squared errors, respectively. The optimum lag, m^* , is the lag length which produces the lowest FPE.

The next step is to treat economic growth (Y) as the only output of the system and financial development (FD) as the manipulated (input) variable, which controls the outcome of Y .

⁹ See also Wood, 1993.

From the above step, the following s regressions can be estimated;

$$(90) \quad Y_t = \mu + \sum_{j=1}^{m^*} \alpha_{t-j} Y_{t-j} + \sum_{j=1}^s \beta_{t-j} FD_{t-j} + \varepsilon_t$$

where (S) represents the maximum lag length and ranges from 1 to s .

From equation (90), the final prediction error for each regression can be computed as follows:

$$(91) \quad FPE(m^*, s) = (T + m^* + s + 1) / (T - m^* - s - 1) \times SS(m^*, s) / T$$

The chosen optimal lag-length for FD, s^* is the length which produces the smallest FPE. In order to test for the causality, the final prediction errors (FPEs) obtained from steps one and two are compared. If $FPE(m^*)$ is less than $FPE(m^*, s^*)$, then a uni-dimensional autoregressive representation for growth is used, and it is said that financial development does not Granger-cause growth. If the converse is true then financial development causes growth. Once the test has been performed with economic growth as the output variable, a similar test for financial development, treating growth as the manipulated variable is undertaken.

8.2.4.2 The Estimation Technique used in the Study

8.2.4.2.1 Causality Test Based on Cointegration and Error-correction Model

In this study, a dynamic causality test proposed by Engle and Granger (1987) is used. The point of departure, therefore, is first to test for the stationarity of the variables used in the causality test, i.e. financial development variables (FD_t) and an economic growth variable (Y_t). In this case, the standard DF, ADF, and SBDW class of tests are used to test for both the trend and differenced stationary. If the variables FD and Y are found to

be integrated of the same order, i.e. I (1) then the next step would be to test for cointegration between Y_t and FD_t variables. In this case, both the Engle-Granger (1987) and the Johansen-Juselius maximum likelihood test are used. Indeed, even the Cointegration Regression Durbin-Watson statistics (CRDW) can be used to test the null hypothesis that the variables FD_t and Y_t are not cointegrated. If the residuals obtained from Y_t and FD_t are non-stationary, then the Durbin-Watson statistics will be close to Zero.

If the two series FD_t and Y_t are cointegrated, then, according to the Granger representation theorem (Engle and Granger, 1987), there exists an error-correction model (ECM). However, since the intention here is to examine the issue of unidirectional causality between financial development and economic growth in the context of cointegration and error-correction modelling, which is normally neglected in the standard Granger causality test, the following error-correction models can be specified.

$$(92) \quad \Delta Y_t = \partial_{11} + \sum_{i=1}^n \partial_{1i} \Delta Y_{t-i} + \sum_{j=1}^m \psi_{1j} \Delta FD_{t-j} + \lambda_1 Z_{t-1} + e_{t1}$$

$$(93) \quad \Delta FD_t = \partial_{22} + \sum_{i=1}^n \partial_{2i} \Delta Y_{t-i} + \sum_{j=1}^m \psi_{2j} \Delta FD_{t-j} + \lambda_2 Z_{t-1} + e_{t2}$$

Z_{t-1} = represent one period lagged error-correction term captured from the cointegration regression.

FD_t = represent the three proxies of financial development, i.e. monetisation variable (M_2/GDP), the currency ratio (CC/M_1), and the ratio of bank claims on the private sector to nominal GDP (DCP/GDP).

Y_t = represent per capita income (y/N) - economic growth variable.

In the error-correction based causality test, the causal inference is obtained through the significance of λ . That is, the null hypothesis that FD_t does not Granger cause Y_t is rejected if λ is statistically significant (Granger 1988). As opposed to the conventional Granger (1969) causality, it is immaterial even if ψ_j s are not jointly significant. The error-correction model has an interesting temporal causal interpretation in the sense that a bivariate cointegrated system must have a causal ordering in at least one direction (Granger, 1987: 259).

8.3 Data Source and Definitions of Variables

8.3.1 Data Source

Annual time series data, which covers the 1968 to 2001 period, is utilised in this study. The data used in the study are obtained from different sources, including various series from each individual country's Statistical Abstracts, Economic Surveys, Development Plans, and Sessional Papers. In addition, different volumes of International Financial Statistics Year Books (IFS, various issues) published by the International Monetary Fund, African Statistical Year Book (UNDP) and World Bank Statistical Yearbooks supplemented the local data. Further secondary data were obtained from the Central Bank of Kenya, the South African Reserve Bank, Bureau for Economic Research (BER) (University of Stellenbosch), and the Bank of Tanzania publications.

8.3.2 Definitions of Variables

8.3.2.1 Definitions of Financial Development and Economic Growth Variables.

The quantitative measurement of both financial development and economic growth variables are bound to be imperfect since these developments are multidimensional and qualitative. In particular, the measurement of financial development seems more controversial because countries differ considerably in both their institutional and financial structures.

Economic growth in this analysis is proxied by real per-capita income (y/N). Financial development on the other hand is proxied by three variables. The first proxy for financial development is the ratio of broad money M_2 to gross domestic product (GDP). The monetisation variable (M_2/GDP) is designed to show the real size of the financial sector of a growing economy. The ratio is therefore expected to increase over time if the financial sector develops faster than the real sector on the one hand, and decrease if the financial sector develops slower than the real sector, on the other hand.

The second measure of financial development employed in the study is the currency ratio, defined as the ratio of currency to the narrow definition of money M_1 (i.e. the sum of currency and demand deposit). The motivation for including the currency ratio in this study is because the variable is normally used as proxy for the complexity of the financial structure (Jung, 1993, Vogel and Buser, 1976). At early stages of the economy, a decrease in the currency ratio will accompany real growth since there will be more diversification of financial assets and liabilities within the economy and more transactions will be carried in non-currency.

The third indicator of the financial development is represented by the ratio of bank claims on the private sector to nominal GDP (DCP/GDP). The ratio indicates the importance of the role played by the financial sector in the financing the economy. It is assumed that credit provided to the private sector generates increases in investment and productivity to a much larger extent than do credits to the public sector (Kar and Pentecost, 2000). The three proxies, monetisation variable (M_2/GDP), the currency ratio (CC/M_1), and the ratio of bank claims on the private sector to nominal GDP (DCP/GDP) are expected to capture both quantitative and qualitative developments of the financial sector in the study countries, i.e. Kenya, South Africa, and Tanzania.

8.3.2.2 Definitions of other Variables

i) Real Money Balances

Real balances (M/P) are defined as the ratio of the stock of broad money (M_2) to consumer price index P . The stock of broad money in this case refers to line 351 in the IMF - international financial statistics yearbook.

ii) Real GDP Growth Rate

$$y_R = (Y_2 - Y_1) / Y_1 * 100$$

where:

y_R = real GDP growth rate;

Y_1 = real GDP in period 1; and

Y_2 = real GDP in period 2.

iii) Real Deposit Rate ($d - P^e$)

The real interest rate: ($d - P^e$) is computed as follows¹⁰:

$$(94) \quad d - P^e = [(1 + d) / (1 + P^e) - 1] \times 100$$

where:

d is the nominal deposit rate on 6 to 12 months deposit in commercial banks; and

¹⁰ See Ikhude, 1992.

P^e is the percentage of CPI expected inflation. The unobservable expected inflation is generated from the actual inflation rate using adaptive expectations theory.

iv) Foreign Savings

Foreign savings in this study are measured by the current account deficit in the balance of payments account.

v) Dependency Ratio

The dependency ratio in this study is defined as the ratio of the difference between the total population and the employed labour force to the total population;
i.e.

$$(95) \quad DR = (TP - EP) / TP.$$

where:

DR = dependency ratio;

TP = total population; and

EP = employed population.

vi) Real Exchange Rate

The real exchange rate is computed as:

$$(96) \quad REXr_i = NEXr * CPI(US) / CPI(X)$$

where:

i = Kenya, South Africa and Tanzania;

REXr = real exchange rate;

NEXr = nominal exchange rate;

CPI (US) = consumer price index of US;

CPI (X) = consumer price index of Kenya, South Africa and Tanzania; and

X= (Kenya, South Africa, and Tanzania)

vii) Incremental Capital Output Ratio (ICOR)

ICOR is measured as¹¹:

$$(97) \text{ ICOR} = (I/\text{GDP})/yR$$

where:

I/GDP = gross domestic investment as a ratio of GDP; and

yR = real growth of GDP

The inverse of ICOR - the incremental output capital ratio (IOCR) is used to measure the productivity of investment in this study.

viii) Financial Depth

$$\text{Financial depth} = M2/\text{GDP}$$

where:

M2 = broad money stock; and

GDP = gross domestic product.

¹¹ See Ikhida (1992).

CHAPTER NINE

ECONOMETRIC ANALYSIS AND EMPIRICAL FINDINGS

9. Introduction

This chapter presents and analyses the results of the empirical models discussed in chapter eight. In the proceeding sections, various tests have been performed in order to establish whether there exists a positive relationship between financial liberalisation and economic growth through increased savings, financial deepening, and investment efficiency in South Africa, Kenya and Tanzania. In addition, the dynamic causality between financial development (resulting from financial liberalisation) and economic growth is investigated.

The chapter is organised in four sections. In section 9.1, the empirical analysis of McKinnon's complementarity hypothesis in the three study countries is presented. In section 9.2, the relationship between interest rate and financial deepening is examined, while in section 9.3, the empirical evidence between financial liberalisation and investment efficiency is investigated. Finally, the long-run causality between financial development and economic growth is tested in Section 9.4.

9.1 Empirical Analysis of McKinnon's Complementarity Hypothesis

9.1.1. Stationarity Test

Before the variables are differenced, stationarity tests of all variables used in the complementarity hypothesis test are performed. The results for stationarity tests of all variables at levels are presented in Table 9.1.

Table 9.1: Stationarity Tests of all Variables at Levels

Variable	DW	SBDW	DF	ADF	Stationarity Status
KENYA					
LM/P	2.020	0.338	1.314	1.359	I(1)
Ly	1.790	0.213	1.057	0.755	I(1)
yR	2.020	1.514	-3.600	-3.052	I(0)
LS ^d /Y	2.020	1.477	-0.624	-0.564	I(1)
d-P ^e	1.700	0.929	-2.508	-3.334	I(0)
S ^f /Y	1.970	0.936	-1.738	-1.364	I(1)
LDR	1.950	0.328	-0.666	-0.826	I(1)
SOUTH AFRICA					
LM/P	2.120	0.109	3.120	2.071	I(1)
Ly	1.800	0.067	3.737	2.092	I(1)
yR	1.880	1.409	-3.260	-1.665	I(1)
LS ^d /Y	2.100	0.337	-1.579	-1.551	I(1)
d-P ^e	1.990	0.553	-1.839	-0.998	I(1)
S ^f /Y	2.000	1.774	-4.673	-2.937	I(0)
LDR	2.100	0.197	-1.463	-1.450	I(1)
TANZANIA					
LM/p	1.970	0.284	1.225	0.200	I(1)
Ly	2.000	0.234	1.328	0.900	I(1)
yR	2.000	1.643	-4.093	-2.913	I(0)
LS ^d /Y	1.930	0.026	0.538	0.346	I(1)
d - P ^e	2.000	1.056	-1.518	-0.869	I(1)
S ^f /Y	2.010	0.117	0.136	-2.228	I(1)
LDR	1.890	0.052	3.062	0.248	I(1)

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

The above results show that all the variables generated from the three countries are non-stationary at levels with the exception of the deposit rate and growth rate in real GDP in the case of Kenya, foreign savings in the case of South Africa, and the growth rate of real GDP in the case of Tanzania. Having found that the variables are not stationary at levels, the next step is to difference the non-stationary variables once in order to perform stationarity tests on differenced variables. The results of stationarity tests on differenced variables are presented in Table 9.2.

Table 9.2: Stationarity Tests of Variables on first Difference

Variables	DW	SBDW	DF	ADF	Order of Integration
KENYA					
DLM/P	2.010	2.065	-4.813	-3.466	I(1)
DLy	2.000	1.366	-3.865	-3.259	I(1)
DLS ^d /Y	2.010	2.709	-7.001	-4.125	I(1)
DS ^f /Y	2.000	2.502	-6.350	-3.916	I(1)
DLDR	1.950	2.588	-6.656	-3.675	I(1)
SOUTH AFRICA					
DLM/p	1.930	1.237	-3.645	-3.181	I(1)
DLy	1.960	1.529	-4.208	-4.266	I(1)
DLS ^d /Y	2.040	2.446	-6.237	-3.165	I(1)
DyR	1.980	2.260	-6.575	-3.702	I(1)
Dd -P ^e	2.100	1.440	-3.933	-4.292	I(1)
DLDR	2.030	1.581	-4.204	-3.593	I(1)
TANZANIA					
DLM/P	1.830	2.746	-8.100	-5.512	I(1)
DLy	1.970	1.408	-3.546	-3.238	I(1)
DLS ^d /Y	1.870	1.519	-4.268	-4.808	I(1)
DS ^f /Y	2.030	1.662	-4.212	-4.140	I(1)
DLDR	2.010	1.148	-4.266	-3.829	I(1)

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

The variables used in this analysis were expressed in their natural logarithm in order to reduce the effect of outliers. The above results show that after differencing the variables once, all the variables were confirmed to be stationary. The DF and ADF tests applied to the first difference of the data series reject the null hypothesis of the non-stationarity for all variables in all the three countries. It is therefore worth concluding that the variables from the three countries are integrated of order one. This also suggests that with the exception of the variables, which were found to be stationary at levels in the three countries, the regressions for all the variables have to be done on first difference and not at levels.

9.1.2 Cointegration Analysis

Having established that the variables from the three study countries are integrated of the same order (order one), the next procedure is to test the possibility of cointegration among the variables used. Two cointegration methods are used in this study, namely, the Johansen-Juselius (Maximum-Likelihood) technique and the Engle-Granger Two-Stage cointegration procedure. The results of these procedures are presented in sections 9.1.2.1 and 9.1.2.2.

9.1.2.1 Johansen and Juselius Approach

The results of cointegration tests based on Johansen-Juselius maximum likelihood test are presented in Table 9.3.

Table 9.3: Johansen-Juselius Maximum Likelihood Cointegration Tests

Trace Test				Maximum Eigenvalue Test			
Null	Alternative	Statistics	95% Critical value.	Null	Alternative	Statistics	95% Critical value
KENYA							
$r = 0$	$r \geq 1$	311	124.2	$r = 0$	$r = 1$	205.7	45.3
$r \leq 1$	$r \geq 2$	105.3	94.2	$r \leq 1$	$r = 2$	49.8	39.4
$r \leq 2$	$r \geq 3$	55.52	68.5	$r \leq 2$	$r = 3$	26.03	33.5
$r \leq 3$	$r \geq 4$	29.5	47.2	$r \leq 3$	$r = 4$	14.0	27.1
$r \leq 4$	$r \geq 5$	15.5	29.7	$r \leq 4$	$r = 5$	11.62	21.0
$r \leq 5$	$r \geq 6$	3.88	15.4	$r \leq 5$	$r = 6$	3.293	14.1
$r \leq 6$	$r = 7$	0.5873	3.8	$r \leq 6$	$r = 7$	0.5873	3.8
SOUTH AFRICA							
$r = 0$	$r \geq 1$	321.4	124.2	$r = 0$	$r = 1$	204	45.3
$r \leq 1$	$r \geq 2$	117.4	94.2	$r \leq 1$	$r = 2$	54.55	39.4
$r \leq 2$	$r \geq 3$	62.85	68.5	$r \leq 2$	$r = 3$	31.72	33.72
$r \leq 3$	$r \geq 4$	31.13	47.2	$r \leq 3$	$r = 4$	15.41	27.1
$r \leq 4$	$r \geq 5$	15.72	29.7	$r \leq 4$	$r = 5$	9.835	21.0
$r \leq 5$	$r \geq 6$	5.886	15.4	$r \leq 5$	$r = 6$	3.863	14.1
$r \leq 6$	$r = 7$	2.023	3.8	$r \leq 6$	$r = 7$	2.023	3.8

TANZANIA							
$r = 0$	$r \geq 1$	240.9	124.2	$r = 0$	$r = 1$	134.4	45.3
$r \leq 1$	$r \geq 2$	106.5	94.2	$r \leq 1$	$r = 2$	41.29	39.4
$r \leq 2$	$r \geq 3$	65.25	68.1	$r \leq 2$	$r = 3$	29.58	33.5
$r \leq 3$	$r \geq 4$	35.67	47.2	$r \leq 3$	$r = 4$	20.94	27.1
$r \leq 4$	$r \geq 5$	14.73	29.7	$r \leq 4$	$r = 5$	8.615	21.0
$r \leq 5$	$r \geq 6$	6.117	15.4	$r \leq 5$	$r = 6$	5.925	14.1
$r \leq 6$	$r = 7$	0.1924	3.8	$r \leq 6$	$r = 7$	0.1924	3.8

Note: -r stands for the number of cointegrating vectors

-The Akaike and Schwarz criteria was used to determine the number of lags for the cointegration test.

The results of the trace tests indicate that for all three countries, there are at most two cointegrating vectors. The trace statistics reject the null hypotheses of $r=0$ and $r \leq 1$ in Kenya, South Africa and Tanzania in favour of the general alternative hypothesis of $r \geq 1$ and $r \geq 2$, respectively. However, the null hypothesis of $r \leq 2$, $r \leq 3$, $r \leq 4$, $r \leq 5$, and $r \leq 6$ could not be rejected at 5% level of significance in all the three countries.

On the side of maximum eigenvalue tests, the null hypotheses of $r=0$ and $r \leq 1$ are rejected at 5% level of significance in Kenya, South Africa and Tanzania in favour of a specific alternative hypothesis that there are two cointegrating vectors, $r=1$ and $r=2$. However, the null hypothesis that $r \leq 2$, $r \leq 3$, $r \leq 4$, $r \leq 5$ and $r \leq 6$ could not be rejected at 5% level of significance.

It is therefore worth noting that both the trace and maximum eigenvalue test statistics reject the null hypothesis of $r=0$ at 5% level of significance. This confirms that there are at least two cointegrating vectors in each study country. These vectors can be identified as the demand for money and savings equations. Hence, it is concluded that there exists a stable long-run relationship between savings as well as money demand and other determinants such as real GDP, deposit rate, GDP growth rate, foreign savings, and dependency ratio.

9.1.2.2 Residual Based Cointegration - Engle -Granger Two step Method

In this section, a two-step cointegration method suggested by Engle-Granger is applied to determine the presence of cointegration in the money demand and savings equations. The first step in this procedure is to estimate a cointegration regression and the second step is to test for the stationarity of the residuals derived from the regression. If the residuals are stationary then the variables are cointegrated and vice versa. Tables 9.4 and 9.5 summarise the result of multivariate cointegration tests for money demand and savings equations.

Table 9.4: Engle-Granger Cointegration Test for Money Demand Function (Multivariate)

Country	Variables	DW	SBDW	DF	ADF	Cointegration status.
Kenya	Res(M/P)1	1.89	1.857	-5.106	-3.232	Cointegrated
South Africa	Res(M/P)2	1.84	1.061	-3.447	-3.635	Cointegrated
Tanzania	Res(M/P)3	1.87	1.997	-5.363	-4.013	Cointegrated

Table 9.5: Engle-Granger Cointegration Test for Savings Function (Multivariate)

Country	Variables	DW	SBDW	DF	ADF	Cointegration status.
Kenya	Res(S^d/Y)	2.16	1.584	-3.976	-3.823	Cointegrated
South Africa	Res(S^d/Y)	2.05	1.3168	-3.328	-3.015	Cointegrated
Tanzania	Res(S^d/Y)	1.92	1.504	-4.022	-3.971	Cointegrated

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

Note: All tests are applied on residuals.

The results reported in Tables 9.4 and 9.5 indicate that both money demand and savings functions are cointegrated in the three study countries. The DF and ADF class of tests reject the null hypothesis of no cointegration in favour of alternative hypothesis. The

study, therefore, concludes that for all three countries, there is a long-run relationship between savings as well as money demand and other determinants such as real GDP, deposit rate, GDP growth rate, foreign savings and dependency ratio.

9.1.3 Error-correction Modelling of McKinnon's Complementarity Hypothesis

The results presented in the preceding section indicate that cointegration has been accepted in both money demand and savings equations in Kenya, South Africa and Tanzania. The next procedure in this case is to estimate an error-correction model by including an error-correction (ECM_{t-1}) term in the set of explanatory variables. Where ECM_{t-1} term is the residual from cointegration regression (lagged once) and is estimated together with the first differences of the non-stationary variables. This enables the study to capture both long run and short-run information.

9.1.3.1 Overparameterised (General) Model for Money Demand Function

The results of the general (overparameterised) error-correction model for money demand equation for each of the study countries are presented in Appendix 1.0. The results of this model are difficult to interpret and many variables are not significant. The model is therefore reduced until a preferred model is obtained.

9.1.3.1.1 Preferred Model for Money Demand Functions

Table 9.6 gives a summary of the preferred models for the money demand function for Kenya, South Africa and Tanzania.

Table 9.6: Modelling Equation (7) DM/P by OLS

KENYA	Coefficient	Standard Error	T-Value	T-Probability	Partial R2
constant	-0.0072	0.0186	-0.3860	0.7041	0.0078
DLM/P-1	0.6790	0.2531	2.6820	0.0147	0.2747
d-Pe	0.0002	0.0011	0.1510	0.8819	0.0012
(d - P ^e) -2	0.0001	0.0010	0.1120	0.9118	0.0007
DLy	0.5680	0.2561	2.2180	0.0389	0.2057
DLS ^d /Y	0.1918	0.0712	2.6930	0.0144	0.2763
ECM1-1	-0.9955	0.3274	-3.0410	0.0067	0.3273

SOUTH AFRICA	Coefficient	Standard Error	T-Value	T-Probability	Partial R2
Constant	-0.0419	0.0244	-1.7190	0.1112	0.1976
DLM/P-1	0.7046	0.4381	1.6080	0.1338	0.1773
DLM/P-2	0.3731	0.2596	1.4370	0.1762	0.1469
DLM/P-3	-0.2716	0.2443	-1.1120	0.2881	0.0934
DLS ^d /Y	0.0390	0.0174	2.2470	0.0442	0.2962
DLS ^d /Y-4	0.0222	0.0191	1.1620	0.2679	0.1011
DLy	1.1578	0.4110	2.8170	0.0155	0.3981
DLy-1	-0.3226	0.3828	-0.8430	0.4159	0.0559
DLy-3	0.2754	0.4902	0.5620	0.5846	0.0256
DLy-4	1.0020	0.4046	2.4760	0.0292	0.3382
D(d- P ^e)	0.0059	0.0036	1.6280	0.1296	0.1808
D(d-P ^e)-1	-0.0071	0.0045	-1.5750	0.1412	0.1713
ECM2-1	-0.7648	0.3806	-2.0090	0.0675	0.2517

TANZANIA	Coefficient	Standard Error	T-Value	T-Probability	Partial R2
Constant	-0.0386	0.0240	-1.6090	0.1272	0.1393
DLM/P-3	0.5656	0.2129	2.6560	0.0172	0.3060
D(d - P ^e)-1	0.0016	0.0021	0.7340	0.4734	0.0326
DLM/P-2	0.4484	0.1961	2.2870	0.0362	0.2463
DLy-3	-0.1129	0.1478	-0.7640	0.4562	0.0352
DLS ^d /Y-1	0.1950	0.0831	2.3460	0.0322	0.2560
D(d-P ^e)	0.0067	0.0023	2.9020	0.0104	0.3449
ECM3-1	-0.2460	0.0986	-2.4960	0.0239	0.2803

KENYA

$R^2 = 0.67$, $F(6,19) = 6.2949$ (0.0009), $\delta = 0.06428$, $DW = 2.00$, $RSS = 0.07852$

Information criteria: $SC = -4.92532$; $HQ = -5.1665$; $FPE = 0.0052453$

$AR\ 1-F(1, 18) = 0.090058(0.7675)$;

$ARCH\ 1\ F(1, 17) = 0.075727(0.7865)$

Normality $X^2(2) = 1.939(0.3793)$;

$RESET\ F(1, 18) = 2.3078(0.1461)$.

SOUTH AFRICA

$R^2 = 0.763124$ $F(12, 12) = 3.2216$ [0.0266] $\delta = 0.0352935$ $DW = 2.07$

$RSS = 0.01494753214$ for 13 variables and 25 observations.

$AR\ 1-2F(2, 10) = 0.53301$ [0.6026]

$ARCH\ 1\ F(1, 10) = 0.024146$ [0.8796]

Normality $X^2(2) = 2.8807$ [0.2368]

$RESET\ F(1, 11) = 0.024144$ [0.8793]

TANZANIA

$R^2 = 0.637112$ $F(7, 16) = 4.013$ [0.0101] $\delta = 0.0727219$ $DW = 1.55$

$RSS = 0.08461564659$ for 8 variables and 24 observations.

$AR\ 1-2F(2, 14) = 0.41519$ [0.6681]

$ARCH\ 1\ F(1, 14) = 0.53587$ [0.4762]

Normality $X^2(2) = 1.6449$ [0.4394]

$RESET\ F(1, 15) = 0.13045$ [0.7230]

9.1.3.1.2 Diagnostic Tests

Four diagnostic tests were carried out: the Autocorrelation test (AR), the Autoregressive-Conditional Heteroscedasticity test (ARCH), the Normality test and RESET test. The autocorrelation (AR) test statistics reveal that: for Kenya, $F(1,18) = 0.0900 < \text{critical value } F(1,18) = 4.41$; for South Africa, $F(2, 10) = 0.5330 < \text{critical value } F(2,10) = 4.10$; and for Tanzania, $F(2, 14) = 0.41519 < \text{critical value } F(2,14) = 3.74$, meaning that there is no error serial autocorrelation in the regression equations. The Autoregressive-Conditional Heteroscedasticity (ARCH) test reveal that: for Kenya, $F(1,17) = 0.07573 < \text{critical value } F(1,17) = 4.45$; for South Africa, $F(1, 10) = 0.02415 < \text{critical value } F(1,10) = 4.96$; and for Tanzania, $F(1, 14) = 0.53587 < \text{critical value } F(1,14) = 4.60$,

implying that the money demand function is not subjected to heteroscedasticity at 5 % level of significance. The Jaque-Bera normality (X^2) test statistics reveal that: for Kenya, $X^2(2) = 1.939 < \text{critical } X^2(2) = 5.991$; for South Africa, $X^2(2) = 2.8807 < \text{critical } X^2(2) = 5.991$; and for Tanzania, $X^2(2) = 1.6449 < \text{critical } X^2(2) = 5.991$. This shows that the error terms are normally distributed and the coefficients are efficient. Finally, the RESET test statistics reveal that: for Kenya, $\text{RESET } F(1,18) = 2.3078 < \text{critical value } F(1,18) = 4.41$; for South Africa, $\text{RESET } F(1, 11) = 0.02414 < \text{critical value } F(1,11) = 4.84$; and for Tanzania, $\text{RESET } F(1, 15) = 0.13045 < \text{critical value } F(1,15) = 4.54$, thus confirming that the real money demand equation is correctly specified.

9.1.3.2 Overparameterised (General) Model for Savings Function

Just like in the case of the real money demand function, the overparameterised model for all the three countries, presented in Appendix 2.0, is difficult to interpret, and as expected, many variables are not significant at the 5% level. The next step therefore is to proceed with the process of model simplification until a preferred model is obtained. A summary of the preferred model (Parsimonious model) by country is presented in Table 9.7.

9.1.3.2.1 Preferred Model for Savings Function

Table 9.7 gives a summary of the results of preferred savings models.

Table 9.7: Modelling of Savings Function

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R2
KENYA					
constant	-0.0062	0.0262	-0.2370	0.8160	0.0040
DLS ^d /Y-1	0.0908	0.1197	0.7590	0.4605	0.0395
DLy-3	-1.3847	0.6426	-2.1550	0.0491	0.2491
yR-1	0.0020	0.0035	0.5620	0.5830	0.0221
yR-2	0.0018	0.0053	0.3350	0.7429	0.0079
DLM/P-2	0.7240	0.3249	2.2280	0.0428	0.2618
DLM/P-3	0.3561	0.2918	1.2200	0.2425	0.0961
DS ^f /Y	-5.3585	0.6633	-8.0780	0.0000	0.8234
DLDR-1	-9.8670	13.4310	-0.7350	0.4747	0.0371
ECM1-1	-0.7173	0.2405	-2.9820	0.0099	0.3885
SOUTH AFRICA	Coefficient	Standard Error	T-Value	T-Probability	Partial R2
Constant	0.1444	0.1937	0.7450	0.4684	0.0382
DLy	-141.8700	136.4100	-1.0400	0.3159	0.0717
DLDR	-1.2222	0.5095	-2.3990	0.0309	0.2913
DLDR-2	-1.0054	0.6155	-1.6330	0.1247	0.1601
DyR	1.3200	1.3392	0.9860	0.3410	0.0649
DLM/P1	6.2301	2.3028	2.7050	0.0171	0.3433
DLS ^d /Y-1	0.3554	0.5113	0.6950	0.4984	0.0334
S ^f /Y-1	5.1857	2.8624	1.8120	0.0915	0.1899
DyR 1	-0.0619	0.0568	-1.0900	0.2941	0.0782
DLy-1	133.0500	138.4400	0.9610	0.3528	0.0619
ECM2-1	-0.7458	0.3702	-2.0150	0.0636	0.2248
TANZANIA	Coefficient	Standard Error	T-Value	T-Probability	Partial R2
Constant	0.2138	0.0987	2.1660	0.0495	0.2651
DLS ^d /Y-1	0.4134	0.2760	1.4980	0.1580	0.1472
DLM/P	-0.6246	0.5463	-1.1430	0.2736	0.0914
DLM/P-1	1.1614	0.5448	2.1320	0.0527	0.2591
yR-1	-0.0024	0.0024	-0.9930	0.3387	0.0705
DLy	0.3831	0.3981	0.9620	0.3534	0.0665
DLDR-1	-2.6193	1.3537	-1.9350	0.0751	0.2236
DS ^f /Y	-0.0777	0.0189	-4.1010	0.0012	0.5641
DS ^f /Y-1	0.0480	0.0320	1.5010	0.1572	0.1478
DS ^f /Y-2	0.0685	0.0392	1.7470	0.1042	0.1901
DLDR	-0.1040	1.4717	-0.0710	0.9447	0.0004
ECM3_1	-0.6962	0.2703	-2.5750	0.0231	0.3378

KENYA

$R^2=0.92$, $F(9,14)=18.123(0.0000)$, $\delta=0.0986734$, $DW=1.71$, $RSS=0.13631005$

Information criteria: $SC=-3.84669$; $HQ=-4.20732$; $FPE=0.0137933$

$AR\ 1-2F(2, 12)=0.82964(0.4597)$; $ARCH\ 1\ F(1, 12)=0.71786(0.4134)$

Normality $X^2(2)=5.5055(0.0638)$; $RESET\ F(1, 13)=1.3071(0.2735)$

SOUTH AFRICA

$R^2=0.748961$ $F(10,14)=4.1768[0.0077]$ $\delta=0.383549$ $DW=2.07$

$RSS=2.059535336$

$AR\ 1-2F(2, 12)=0.15309[0.8597]$

$ARCH\ 1\ F(1, 12)=0.083715[0.7773]$

Normality $X^2(2)=1.2735[0.5290]$

$RESET\ F(1, 13)=0.053415[0.8208]$

TANZANIA

$R^2=0.693618$ $F(11, 13)=2.6755[0.0474]$ $\delta=0.164315$ $DW=2.04$

$RSS=0.3509923403$

$AR\ 1-2F(2, 11)=0.81806[0.4664]$

$ARCH\ 1\ F(1, 11)=0.76824[0.3995]$

Normality $X^2(2)=3.2345[0.1984]$

$RESET\ F(1, 12)=1.5497[0.2369]$

9.1.3.2.2 Diagnostic Test Statistics for Savings Model

As in the case of the money demand equation, the four diagnostic tests carried out on the savings function indicate that the model conforms to econometric theory. The autocorrelation (AR) test statistics reveal that: for Kenya, $F(2,12)=0.82964 < \text{critical value } F(2,12)=3.89$; for South Africa, $F(2, 12)=0.15309 < \text{critical value } F(2,12)=3.89$; and for Tanzania, $F(2, 11)=0.81806 < \text{critical value } F(2,11)=3.98$, meaning that there is no error serial autocorrelation in the regression equations. The Autoregressive-Conditional Heteroscedasticity (ARCH) test statistics reveal that: for Kenya, $F(1,12)=0.71786 < \text{critical value } F(1,12)=4.75$; for South Africa, $F(1, 12)=0.083715 < \text{critical value } F(1,12)=4.75$; and for Tanzania, $F(1, 11)=0.76824 < \text{critical value } F(1,11)=$

4.84, implying that the savings function is not subjected to heteroscedasticity at 5 % level of significance. The Jaque-Bera normality (X^2) test statistics reveal that: for Kenya, $X^2(2) = 5.505 < \text{critical } X^2(2) = 5.991$; for South Africa, $X^2(2) = 1.2735 < \text{critical } X^2(2) = 5.991$; and for Tanzania, $X^2(2) = 3.2345 < \text{critical } X^2(2) = 5.991$. This indicates that the error terms are normally distributed and the coefficients are efficient. Finally, the RESET test statistics reveal that: for Kenya, $\text{RESET } F(1,13) = 1.3071 < \text{critical value } F(1,13) = 4.67$; for South Africa, $\text{RESET } F(1, 13) = 0.0534 < \text{critical value } F(1,13) = 4.67$; and for Tanzania, $\text{RESET } F(1, 12) = 1.5497 < \text{critical value } F(1,12) = 4.75$, thus confirming that the savings function is correctly specified.

9.1.4 Analysis of the Results of McKinnon's Complementarity Hypothesis

In this section, the hypothesis that money and physical capital are complementary has been tested. The demand for money was made a function of the savings ratio and, simultaneously, savings was made a function of real money balances. Contrary to the results obtained from some previous studies, an error-correction modelling approach indicates a strong support for McKinnon's complementarity hypothesis in Kenya, South Africa, and Tanzania. This applies irrespective of whether money demand and savings functions are estimated in a static long-run formulation (cointegration regression) or in the dynamic formulation (error-correction models).

For Kenya, the coefficient of savings rate (S^d/Y) in the money demand function and the lagged real money balances (M/P) in the savings function are both positive and statistically significant at 1% and 5% respectively. For South Africa, the coefficient of savings rate in the money demand function and the lagged real money balances (M/P) in the savings function are both positive and statistically significant at 5%. For Tanzania, the coefficient of lagged savings rate in the money demand function and the lagged real money balances (M/P) in the savings function are both positive and statistically significant at 5%. These findings are consistent with Khan and Hasan (1998), Thornton (1990), Laumas (1990), and Nyagetera (1997), but are in sharp contrast with Fry (1978).

The error-correction terms in both equations for all countries have the correct (negative) sign and are statistically significant. The presence of significant coefficients of error-correction terms indicates a strong feedback effect of deviation of money demand and savings functions from their long-run growth path. For money demand function, the error-correction terms ECM1-1, ECM2-1, and ECM3-1 indicate that about 99%, 76%, and 25% of the discrepancy between the actual and equilibrium values of savings rates are corrected for each period in Kenya, South Africa and Tanzania, respectively. Similarly, for the savings function, the error-correction terms ECM1-1, ECM2-1, and ECM3-1 indicate that about 72%, 75%, and 70% of the discrepancy between the actual and equilibrium values of savings rates are corrected for each period in Kenya, South Africa and Tanzania, respectively.

In the savings function, the coefficient on foreign savings (DS^f/Y) is negative and statistically significant in Kenya and Tanzania. The variable is significant at 1% in both countries. This indicates that for Kenya and Tanzania there is substitutability between foreign and domestic savings. This finding is consistent with Fry (1978, 1980), Giovanini (1985), Bowles (1987), Khan and Hassan (1998), and Kendall (2000). However, for South Africa, the coefficient of the lagged savings ($DS^f/Y-1$) came out with a positive sign and is significant at 10 % level. This shows that for South Africa, foreign savings complement, rather than substitute domestic savings. This finding, though contrary to the majority of the previous studies, is consistent with Khan, Hasan, and Malik (1994), and Khan and Hasan (1998).

The mobilisation of savings appears to have taken place independent of movements in real income in all three countries, and as a result, growth rates of real income seem to have very little effect on the savings rates. For Kenya, the coefficient of the lagged GDP is negative and statistically significant, while the coefficient of the lagged growth rate of real income, though positive, failed to reach the traditional level of significance. For South Africa, the coefficient of real income is negative, while the coefficient of growth

rate of real GDP is positive. However, both coefficients are statistically insignificant. For Tanzania, the coefficient of the real GDP is positive, while the coefficient of the lagged growth rate of real GDP is negative. Nevertheless, both coefficients are statistically insignificant. These results are not surprising because, as Fry (1991) points out, the acceleration in the growth rate of real income or real per capita income will raise the savings rate by a smaller amount if the dependency ratio is higher. In this study, the dependency ratio is found to have a significant effect on the saving rate in South Africa and Tanzania, and a limited effect on savings in Kenya.

The coefficient of the dependency ratio in South Africa and the coefficient of the lagged dependency ratio in Tanzania bear a negative sign and are statistically significant. Although the coefficient of the lagged dependency ratio in Kenya failed to reach the expected traditional level of significance, the variable is negative as predicted, indicating a negative relationship between dependency ratio and domestic savings. This finding is consistent with Fry (1990) for the case of Asian countries, Khan, Hasan, and Malik (1998), and Khan and Hasan (1998) for the case of Pakistan.

In the real money demand function, the coefficient of the real deposit rate in Tanzania is positive and statistically significant as expected. Although the coefficient is positive in South Africa and Kenya, it failed to reach the traditional level of significance hypothesised in this study. The coefficient of real GDP on the other is positive and statistically significant as expected in Kenya and South Africa, but negative and statistically insignificant in Tanzania. The remaining variables are insignificant in this study.

9.2 Empirical Analysis of Financial Deepening Model

9.2.1 Stationarity Test

Before the variables in the financial deepening equation are differenced, stationarity tests of all variables are performed. The results for the stationarity test of variables at levels are presented in Table 9.8.

Table 9.8: Stationarity Tests of all Variables at Levels

Variable	DW	SBDW	DF	ADF	Stationarity Status
KENYA					
Ld	1.940	0.069	1.981	1.269	I (1)
L P ^e	1.680	-1.762	-2.413	-1.631	I (1)
Lm	2.050	0.251	2.156	1.571	I (1)
Ly	2.000	0.215	1.631	0.828	I (1)
SOUTH AFRICA					
Ld	1.850	0.486	0.763	0.736	I (1)
L P ^e	2.600	1.106	0.073	1.063	I (1)
Lm	1.890	0.535	1.660	2.502	I (1)
Ly	2.030	0.417	2.084	1.795	I (1)
TANZANIA					
Ld	1.810	0.111	0.157	0.146	I (1)
P ^e	1.970	0.816	-0.817	-0.121	I (1)
Lm	1.970	0.284	1.225	0.200	I (1)
Ly	2.000	0.234	1.328	0.900	I (1)

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

The above results show that all the variables from the three countries are non-stationary at levels. The DF and ADF tests applied to the variables at levels confirm that all the variables in the three study countries are non-stationary. The variables are, therefore, differenced once in order to perform stationary tests on differenced variables. Table 9.9 presents the results of stationarity tests on differenced variables.

Table 9.9: Stationarity Tests of Variables on first Difference

Variables	DW	SBDW	DF	ADF	Order of Integration
KENYA					
DLd	1.920	1.315	-3.521	-3.134	I (1)
DL P ^e	2.320	2.950	-7.747	-4.221	I (1)
DLm	2.010	2.065	-4.491	-3.776	I (1)
DLy	2.010	1.366	-3.522	-3.162	I (1)
SOUTH AFRICA					
DLd	2.000	1.322	-3.583	-3.388	I (1)
DL P ^e	1.690	1.593	-4.566	-4.560	I (1)
DLm	1.600	1.330	-3.340	-4.335	I (1)
DLy	1.940	1.552	-4.180	-3.042	I (1)
TANZANIA					
DLd	1.980	1.620	4.062	-3.338	I (1)
D P ^e	1.850	2.576	-7.420	-3.404	I (1)
DLm	1.810	2.560	-3.636	-3.071	I (1)
DLy	1.990	1.551	-3.932	-3.251	I (1)

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

The results reported in Table 9.9 show that after differencing the variables once, all the variables were confirmed to be stationary in all the study countries. The DF and ADF tests applied to the first difference of the data series reject the null hypothesis of non-stationarity for all the variables used in the study countries. It is therefore worth concluding that the variables from the three countries are integrated of order one.

9.2.2 Cointegration Analysis

Having established that the variables included in the financial deepening equation are integrated of the same order (order one) in the three countries, the next procedure is to test the possibility of cointegration among the variables used. As outlined in chapter eight, two cointegration methods are used, namely, the Johansen-Juselius (Maximum-Likelihood) technique and the Engle-Granger two-stage cointegration procedure. The results of these procedures are presented in sections 9.2.2.1 and 9.2.2.2.

9.2.2.1 Johansen-Juselius (ML) Cointegration Test for Financial Deepening

The results of cointegration tests for financial deepening model using Johansen and Juselius maximum likelihood test procedure is presented in Table 9.10¹.

Table 9.10: Johansen-Juselius Maximum Likelihood Cointegration Tests

Trace Test				Maximum Eigenvalue Test			
Null	Alternative	Statistics	95% Critical value.	Null	Alternative	Statistics	95% Critical value
KENYA							
$r = 0$	$r \geq 1$	66.52	47.2	$r = 0$	$r = 1$	48.4	27.1
$r \leq 1$	$r \geq 2$	18.12	29.7	$r \leq 1$	$r = 2$	12.57	21.0
$r \leq 2$	$r \geq 3$	5.554	15.4	$r \leq 2$	$r = 3$	4.858	14.1
$r \leq 3$	$r = 4$	0.6961	3.8	$r \leq 3$	$r = 4$	0.6961	3.8
SOUTH AFRICA							
$r = 0$	$r \geq 1$	62.15	47.2	$r = 0$	$r = 1$	35.49	27.1
$r \leq 1$	$r \geq 2$	26.66	29.7	$r \leq 1$	$r = 2$	15.2	21.0
$r \leq 2$	$r \geq 3$	11.47	15.4	$r \leq 2$	$r = 3$	10.23	14.1
$r \leq 3$	$r = 4$	1.237	3.8	$r \leq 3$	$r = 4$	1.237	3.8
TANZANIA							
$r = 0$	$r \geq 1$	66.49	47.2	$r = 0$	$r = 1$	41.5	27.1
$r \leq 1$	$r \geq 2$	24.99	29.7	$r \leq 1$	$r = 2$	12.52	21.0
$r \leq 2$	$r \geq 3$	12.47	15.4	$r \leq 2$	$r = 3$	9.166	14.1
$r \leq 3$	$r = 4$	3.299	3.8	$r \leq 3$	$r = 4$	3.299	3.8

Note: r stands for the number of cointegrating vectors

The results of the trace tests indicate that for all the three countries, there is at most one cointegrating vector. The trace statistics reject the null hypotheses of $r=0$ in Kenya, South Africa and Tanzania in favour of the general alternative hypothesis of $r \geq 1$. However, the null hypothesis of $r \leq 1$, $r \leq 2$, and $r \leq 3$ could not be rejected at 5% level of significance.

On the side of maximum eigenvalue tests, the null hypotheses of no cointegrating vector ($r=0$) is rejected at 5% level of significance in Kenya, South Africa and Tanzania in favour of a specific alternative hypothesis that there is one cointegrating vector ($r=1$).

¹ The Akaike and Schwarz criteria were used to determine the number of lags for the cointegration test.

But, the null hypothesis of $r \leq 1$, $r \leq 2$, and $r \leq 3$ could not be rejected at 5% level of significance. It is worth noting that both the trace test and maximum eigenvalue test reject the null hypothesis of no cointegration at 5% level of significance. This suggests that there is at least one cointegrating vector in each study country.

9.2.2.2 Residual Based Cointegration- Engle -Granger Two-Step Method

The results of the cointegration test using the Engle-Granger (1987) two-step method are reported in Table 9.11.

Table 9.11: Engle-Granger Cointegration Test for Financial Deepening Function (Multivariate)

Country	Variables	DW	SBDW	DF	ADF	Cointegration status.
Kenya	Residual 1	1.99	2.054	-5.836	-3.42	Cointegrated
South Africa	Residual 2	2.08	1.433	3.541	-3.095	Cointegrated
Tanzania	Residual 3	1.82	1.822	-4.856	-3.392	Cointegrated

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

Note: All tests are applied on residuals.

A cursory look at the Engle-Granger cointegration test for financial deepening equation shows that all the variables are cointegrated in three countries. The unit root tests applied on the residuals of financial deepening reject the null hypothesis of no cointegration. The study, therefore, concludes that for all three countries there is a stable long-run relationship between financial deepening, real income, the deposit rate, and inflation.

9.2.3 Error-correction Modelling: Financial Deepening Equation

Having confirmed cointegration of the financial deepening equation in the three study countries, the next step is to estimate an error-correction model by including the error-correction term (ECM_{1t}) in the set of explanatory variables.

9.2.3.1 Overparameterised (General) Model for Financial Deepening Equation

The results of the general (overparameterised) error-correction model for the financial deepening equation for Kenya, South Africa and Tanzania are presented in Appendix 3.0. As expected, the results of this model are difficult to interpret and many variables are not significant. The model is therefore reduced until a preferred model is obtained.

9.2.3.2 Preferred Model for Financial Deepening Test

Table 9.12 gives a summary of the results for the preferred financial deepening model.

Table 9.12: Modelling Equation (7) DLm by OLS

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R2
KENYA					
Constant	-0.0851	0.0422	-2.0160	0.0668	0.2530
DLm_1	0.6521	0.2860	2.2800	0.0417	0.3023
DLm_2	1.6918	0.5187	3.2620	0.0068	0.4699
DLd_1	0.9167	0.2826	3.2440	0.0070	0.4672
DLy	1.1348	0.2635	4.3060	0.0010	0.6071
DLy_2	-2.2376	0.6577	-3.4020	0.0053	0.4910
DL P ^e _2	0.0415	0.0125	3.3160	0.0062	0.4782
DL P ^e _3	0.0138	0.0093	1.4860	0.1631	0.1554
DLd	0.1010	0.1499	0.6730	0.5134	0.0364
DLd_3	0.3163	0.2390	1.3240	0.2103	0.1274
DLd_4	0.1316	0.1747	0.7530	0.4659	0.0451
DLd_2	-0.7486	0.2526	-2.9630	0.0118	0.4225
ECM_1	-0.8053	0.2345	-3.4340	0.0049	0.4956
SOUTH AFRICA					
Constant	0.0017	0.0184	0.0890	0.9301	0.0006
DLm_1	0.4603	0.2736	1.6830	0.1163	0.1788
DLm_2	0.2711	0.2318	1.1700	0.2631	0.0952
DLd	0.1049	0.0473	2.2160	0.0451	0.2742
DLy	0.8978	0.3323	2.7020	0.0181	0.3597
DLy_4	0.0555	0.2842	0.1950	0.8481	0.0029
DLy_1	-0.3616	0.4518	-0.8000	0.4379	0.0470
DLy_3	-0.0053	0.3344	-0.0160	0.9875	0.0000
DL P ^e _1	0.0235	0.0647	0.3630	0.7222	0.0100
DLy_2	-0.5418	0.3214	-1.6860	0.1157	0.1794
ECM_1	-0.8811	0.2693	-3.2710	0.0061	0.4515
TANZANIA					
Constant	-0.0151	0.0178	-0.8480	0.4104	0.0489
DLm_1	0.0509	0.1622	0.3140	0.7583	0.0070
DLm_2	0.0511	0.2135	0.2390	0.8142	0.0041
DLm_3	0.6202	0.2454	2.5270	0.0242	0.3133
DLm_4	0.4417	0.2410	1.8330	0.0881	0.1936
DLy-GDP	0.4362	0.1539	2.8340	0.0133	0.3645
DLd	0.1588	0.0773	2.0550	0.0590	0.2318
DL P ^e _1	-0.0061	0.0026	-2.2900	0.0381	0.2725
D LP ^e _2	-0.0050	0.0025	-2.0150	0.0636	0.2248
ECM_1	-0.3883	0.1014	-3.8300	0.0018	0.5117

KENYA

$R^2 = 0.765654$ $F(12, 12) = 3.2672$ $[0.0253]$ $\delta = 0.0674789$ $DW = 2.15$

$RSS = 0.05464077096$

AR 1- 2F (2, 10) =	0.62528	[0.5548]
ARCH 1 F (1, 10) =	1.2445	[0.2907]
Normality X^2 (2) =	0.50369	[0.7774]
RESET F(1, 11) =	0.21276	[0.6536]

SOUTH AFRICA

$R^2 = 0.770556$ $F(10, 13) = 4.3659$ $[0.0077]$ $\delta = 0.0332268$ $DW = 1.83$

$RSS = 0.01435225696$

AR 1- 2F (2, 11) =	0.32003	[0.7327]
ARCH 1 F (1, 11) =	0.050377	[0.8265]
Normality X^2 (2) =	2.1364	[0.3436]
RESET F(1, 12) =	8.532	[0.0128]

TANZANIA

$R^2 = 0.707523$ $F(9, 14) = 3.763$ $[0.0133]$ $\delta = 0.0700979$ $DW = 2.09$

$RSS = 0.6879196288$

AR 1- 1F (1, 13) =	0.76575	[0.3974]
ARCH 1 F (1, 12) =	0.71962	[0.4129]
Normality X^2 (2) =	0.42939	[0.8068]
RESET F(1, 13) =	0.29008	[0.5993]

9.2.3.3 Diagnostic Tests

The battery of tests reported for Kenya, South Africa and Tanzania on the financial deepening model suggests that these models do not suffer from serial correlation, nor are the models misspecified nor is the choice of functional form incorrect. The normality of the residuals is not rejected, and the reliability of the 't' values is ascertained. The residuals are also confirmed to be homoscedastic.

The AR (m) test statistics is less than the critical value in Kenya, South Africa and Tanzania, meaning that there is no error serial autocorrelation in the equation. The F-

calculated at 5 % level of significance is greater than the critical in all the three countries, thus leading to the conclusion that the overall regressions are significant. For Kenya, $F\text{-Cal} (3.2672) > F\text{-critical} (2.69)$; for South Africa, $F\text{-Cal} (4.3659) > F\text{-critical} (2.67)$; and for Tanzania, $F\text{-Cal} (3.763) > F\text{-Critical} (2.65)$.

9.2.4 Analysis of Financial Deepening Model

This section attempts to test the hypothesis, which states that financial liberalisation in sub-Saharan Africa leads to financial deepening. The financial deepening equation was tested by regressing real money balance (DLm) on the real income (DLy), deposit rate (DLd), and the expected inflation (DLP^e).

The results of the financial deepening show that for all the three countries, the deposit rate variable came out with a positive and significant sign. In Kenya, the deposit interest rate (lagged one period) is positive and statistically significant at 1 %. In South Africa and Tanzania, the deposit interest rate is positive and statistically significant at 5%. The results for the three countries also show that the coefficients of the real GDP and the lagged real money balances are positive and statistically significant as expected. The error-correction terms for the three countries have the correct (negative) sign and are statistically significant. The significant coefficients of error-correction terms indicate a strong feedback effect of deviation of financial deepening function from its long-run growth path. The error-correction terms ECM1-1, ECM2-1, and ECM3-1 indicate that about 81%, 88%, and 39% of the discrepancy between the actual and equilibrium values of real money balances are corrected each period in Kenya, South Africa and Tanzania, respectively. These results provide abundant support for financial deepening in the three study countries. This finding is consistent with Gupta (1984); Ikhida (1992) in the case of Kenya; and Khan and Hasan (1998) in the case of Pakistan.

The impact of expected inflation on financial deepening is, however, mixed. For Kenya, the coefficient of expected inflation (lagged two periods) is positive and statistically

significant, while for Tanzania, the coefficients of expected inflation (lagged one and two periods) are negative and statistically significant. Although the coefficient of expected inflation (lagged one period) in South Africa is positive, it is statistically insignificant. The remaining variables are insignificant in this study.

9.3 Empirical Analysis of Investment Efficiency Model

In this section, the hypothesis, which states that financial liberalisation promotes investment efficiency, is tested. In order to accomplish this, the incremental output capital ratio (IOCR) was regressed on the real deposit rate, real exchange rate, and foreign savings. What follows is an empirical test of this model.

9.3.1 Stationarity Test

Like in the previous sections, all variables included in the investment efficiency (IOCR) test were subjected to the stationarity test in order to avoid spurious results. The results of the stationarity tests at levels are presented in Table 9.13.

Table 9.13: Stationarity Tests of all Variables at Levels

Variable	DW	SBDW	DF	ADF	Stationarity Status
KENYA					
IOCR	0.953	1.081	-1.316	-2.284	I(1)
S^f/y	1.980	0.827	-1.908	-1.436	I(1)
d- P^e	1.700	0.929	-2.508	-3.334	I(0)
Lrexr	2.000	0.391	-0.083	-0.066	I(1)
SOUTH AFRICA					
IOCR	1.570	0.749	-3.908	-1.947	I(1)
S^f/Y	2.000	1.774	-4.673	-2.437	I(0)
d- P^e	1.960	0.611	-2.042	-1.609	I(1)
Lrexr	1.970	0.744	0.088	0.209	I(1)
TANZANIA					
ICOR	2.360	1.313	-3.377	-0.035	I(1)
S^f/y	2.030	0.112	0.201	-0.224	I(1)
d- P^e	1.190	0.610	-1.518	-0.490	I(1)
Lrexr	1.920	0.105	0.555	0.494	I(1)

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

The above results show that all the variables generated from the three countries are non-stationary at level with the exception of the real deposit rate in the case of Kenya and foreign savings in the case of South Africa. The next step, therefore, is to difference the non-stationary variables once and test for stationarity on their first difference. The results of the stationarity on first difference proceed.

Table 9.14: Stationarity Tests of Variables on first Difference

Variables	DW	SBDW	DF	ADF	Order of Integration
KENYA					
DIOCR	1.740	1.710	-5.021	-3.223	I (1)
DS ^f /Y	1.970	2.561	-6.880	-4.023	I (1)
DLR _{exr}	1.990	2.325	-6.105	-3.572	I (1)
SOUTH AFRICA					
DIOCR	2.030	2.360	-6.140	-3.938	I (1)
d- P ^e	1.980	1.372	-3.809	-4.003	I (1)
DLR _{exr}	2.060	2.410	-6.245	-3.410	I (1)
TANZANIA					
DIOCR	1.330	2.570	-9.183	-6.352	I (1)
DS ^f /y	1.890	1.860	-5.485	-3.456	I (1)
Dd- P ^e	1.880	2.562	-7.250	-3.225	I (1)
DLR _{exr}	1.840	2.360	-6.482	-5.566	I (1)

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

The above results indicate that all variables are now stationary at first difference.

9.3.2 Cointegration Test

9.3.2.1 Johansen and Juselius Approach

The results of the cointegration test based on Johansen and Juselius are presented in Table 9.15².

² The Akaike and Schwarz criteria were used to determine the number of lags for the cointegration test.

Table 9.15: Johansen-Juselius Maximum Likelihood Cointegration Tests

Trace Test				Maximum Eigenvalue Test			
Null	Alternative	Statistics	95% Critical value.	Null	Alternative	Statistics	95% Critical value
KENYA							
$r = 0$	$r \geq 1$	57.31	47.2	$r = 0$	$r = 1$	32.97	27.1
$1 \leq 1$	$r \geq 2$	24.33	29.7	$r \leq 1$	$r = 2$	19.13	21.0
$r \leq 2$	$r \geq 3$	5.201	15.4	$r \leq 2$	$r = 3$	3.786	14.1
$r \leq 3$	$r = 4$	1.415	3.8	$r \leq 3$	$r = 4$	1.415	3.8
SOUTH AFRICA							
$r = 0$	$r \geq 1$	82.43	47.2	$r = 0$	$r = 1$	56.79	27.1
$r \leq 1$	$r \geq 2$	25.64	29.7	$r \leq 1$	$r = 2$	15.73	21.0
$r \leq 2$	$r \geq 3$	9.905	15.4	$r \leq 2$	$r = 3$	6.651	14.1
$r \leq 3$	$r = 4$	3.254	3.8	$r \leq 3$	$r = 4$	3.254	3.8
TANZANIA							
$r = 0$	$r \geq 1$	102.9	47.2	$r = 0$	$r = 1$	84.7	27.1
$1 \leq 1$	$r \geq 2$	18.2	29.7	$r \leq 1$	$r = 2$	11.27	21.0
$r \leq 2$	$r \geq 3$	6.929	15.4	$r \leq 2$	$r = 3$	6.899	14.1
$r \leq 3$	$r = 4$	0.0302	3.8	$r \leq 3$	$r = 4$	0.0302	3.8

Note: r stands for the number of cointegrating vectors

The trace test results for the investment efficiency function indicate that for all the three countries, there is at most one cointegrating vector. The trace statistics reject the null hypotheses of $r = 0$ in Kenya, South Africa and Tanzania in favour of the general alternative hypothesis of $r \geq 1$. The test, however, fails to reject the null hypothesis of $r \leq 1$, $r \leq 2$, and $r \leq 3$ at 5% level of significance.

On the side of maximum eigenvalue tests, the null hypothesis of no cointegrating vector ($r=0$) is rejected at 5% level of significance in Kenya, South Africa and Tanzania in

favour of a specific alternative hypothesis that there is one cointegrating vector ($r=1$). However, the null hypothesis of $r \leq 1$, $r \leq 2$, and $r \leq 3$ could not be rejected at 5% level of significance. Both the trace test and maximum eigenvalue test, therefore, reject the null hypothesis of no cointegration at 5% level of significance, which suggest that there is at least one co integrating vector in each study country.

9.3.2.2 Cointegration Analysis-Multivariate (Engle-Granger Two Step Method)

The results of cointegration test based on Engle-Granger (1987) two-step method are presented in Table 9.16.

Table 9.16: Engle-Granger Cointegration Test for Investment Efficiency Model (Multivariate)

Country	Variables	DW	SBDW	DF	ADF	Cointegration status.
Kenya	Residual 1	1.61	1.056	-1.77	-3.52	Cointegrated
South Africa	Residual 2	1.75	1.425	-4.583	-4.105	Cointegrated
Tanzania	Residual 3	1.79	2.56	-6.253	-3.400	Cointegrated

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

Note: All tests are applied on residuals.

The residual-based cointegration test results show that for the three study countries, all the variables included in the investment efficiency function are cointegrated. The DF and the ADF tests applied on the residuals reject the null hypothesis of non-stationarity in Kenya, South Africa and Tanzania.

9.3.3 Error-correction Modelling of Investment Efficiency (IOCR) Equation

The preceding results show that cointegration of investment efficiency function (IOCR) has been accepted in all three countries by both the Johansen-Juselius (maximum likelihood) test and the Engle-Granger two-step method. The next step is to estimate an error-correction model, with the error-correction term as one of the independent variables. The empirical results of investment efficiency function based on error-correction mechanism are presented in sections 9.3.3.1 and 9.3.3.2.

9.3.3.1 Overparameterised Error-correction Model for (IOCR) Function

The overparametarised model for investment efficiency (IOCR) function reported in Appendix 4.0 remains difficult to interpret, as expected. Consequently, the model is simplified and reduced until the preferred model is obtained. Table 9.17 gives a summary of the preferred model.

9.3.3.2 Preferred (Parsimonious) Model for DIOCR Function**Table 9.17: Modelling Equation (7) DIOCR by OLS**

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R2
KENYA					
constant	3.2812	9.1627	0.3580	0.7249	0.0080
d- P^e	1.7785	0.7765	2.2900	0.0359	0.2469
DIOCR-3	0.6086	0.3074	1.9800	0.0652	0.1967
(d- P^e)-1	-2.0813	0.7714	-2.6980	0.0158	0.3127
DS^f/Y -1	46.6390	212.9100	0.2190	0.8294	0.0030
DS^f/y -2	349.3200	199.8100	1.7480	0.0996	0.1604
DLRexr-1	82.5290	80.3530	1.0270	0.3197	0.0619
ECM1-1	-0.9863	0.2630	-3.7500	0.0017	0.4677
SOUTH AFRICA					
constant	-19.5790	10.6020	-1.8470	0.0846	0.1852
DIOCR-1	0.3114	0.1723	1.8070	0.0908	0.1788
DIOCR-3	0.0177	0.1289	0.1370	0.8929	0.0012
D(d- P^e) -1	0.3917	3.2422	0.1210	0.9054	0.0010
D(d- P^e) -3	0.1025	3.3139	0.0310	0.9757	0.0001
S^f/Y	103.4300	93.0290	1.1120	0.2837	0.0761
S^f/Y -3	444.2000	269.7600	1.6470	0.1204	0.1531
DLRexr-2	292.0900	134.8700	2.1660	0.0469	0.2382
DLRexr-3	-95.7940	118.8600	-0.8060	0.4329	0.0415
ECM2-1	-0.6149	0.1887	-3.2580	0.0053	0.4145
TANZANIA					
Constant	-0.6156	6.5770	-0.0940	0.9270	0.0007
Dd- P^e	0.3393	0.4849	0.7000	0.4974	0.0392
D(d- P^e)-2	0.2197	0.4300	0.5110	0.6186	0.0213
DLRexr	10.5670	28.7000	0.3680	0.7192	0.0112
DS^f/Y	-13.0390	3.9800	-3.2760	0.0066	0.4721
DIOCR-2	-0.5848	0.2268	-2.5780	0.0242	0.3565
DLRexr-1	11.8670	33.8830	0.3500	0.7322	0.0101
DLRexr-2	-29.9680	30.5010	-0.9830	0.3452	0.0745
DIOCR-3	0.5733	0.4766	1.2030	0.2522	0.1076
DS^f/Y -1	6.7647	4.6849	1.4440	0.1744	0.1480
ECM3-1	-0.8352	0.2655	-3.1460	0.0084	0.4520

KENYA

$R^2=0.60$, $F(7,16)=3.3898$ (0.0204), $\delta=33.0957$, $DW=1.68$,

$RSS=17525.15721$

Information criteria: $SC=7.65269$, $HQ=7.36418$; $FPE=1460.43$

$AR\ 1-2F(1, 14)=1.2565$ (0.3149);

$ARCH\ 1\ F(1, 14)=0.593$ (0.4542)

SOUTH AFRICA

$R^2=0.626188$ $F(9,15)=2.7919$ (0.0382), $\delta=50.7002$, $DW=2.48$,

$RSS=38557.60654$

$AR\ 1-2F(1, 13)=2.2708$ (0.1426);

$ARCH\ 1\ F(1, 13)=1.1363$ (0.3058)

TANZANIA

$R^2=0.746449$ $F(10, 12)=3.5328$ [0.0211] $\delta=17.4557$ $DW=1.81$

$RSS=3656.428325$

$AR\ 1-2F(2, 10)=1.2977$ [0.3155]

$ARCH\ 1\ F(1, 10)=0.0051617$ [0.9441]

9.3.3.3 Diagnostic Test Statistics for IOCR Equation

The diagnostic tests performed on the preferred model of investment efficiency function in the three study countries indicate that the model conforms to economic theory and is void of any bias or inconsistencies. The model is not misspecified and neither is the choice of functional form incorrect. The AR (m) test statistics are less than the critical value in Kenya, South Africa and Tanzania, meaning that there is no error serial autocorrelation in the investment efficiency equation. The F- statistics reveal that for Kenya, $F\text{-Cal}(3.3898) > F\text{-critical}(2.66)$; for South Africa, $F\text{-Cal}(2.7919) > F\text{-critical}(2.59)$; and for Tanzania, $F\text{-Cal}(3.5328) > F\text{-Critical}(2.75)$, thus leading to the conclusion that the overall regressions are significant.

9.3.4 Analysis of the Investment Efficiency Results

In the above section, the impact of financial liberalisation on investment efficiency in Kenya, South Africa and Tanzania is examined. The empirical analysis of investment efficiency (IOCR) function was based on the assumption that the average investment efficiency is monotonically related to the incremental output capital ratio (IOCR). The result of this analysis is expected to augment further the relevance of McKinnon's hypothesis in the study countries.

The results of the regression are, however, mixed. The coefficient of the real deposit rate in the IOCR function is positive and statistically significant in Kenya, as expected. This shows that the financial system in Kenya has had a significantly positive influence on investment efficiency during the study period. In other words, this finding indicates that the current financial reforms in Kenya have succeeded in transferring capital to projects with high productivity. This finding is consistent with Ikhida (1992) and Fry (1979). Contrary to the expectation of this study, the coefficient of the real deposit rate, though positive in South Africa and Tanzania, failed to reach the traditional level of significance. This suggests that the financial systems in South Africa and Tanzania have had insignificant influence on the quality of investment during the study period. It also implies that for South Africa and Tanzania, a rise in the real loan rate increases the firms' operating costs and lowers their profitability, which then lowers their investment efficiency or productivity. In other words, the current financial liberalisation taking place in Tanzania has not succeeded in transferring capital from projects with low returns to projects with high returns. This result, though contrary to the gist of financial liberalisation, is consistent with Ikhida (1992) for the case of Gambia, Cameroon, Senegal, Malawi, etc., and Nyagetera (1997) for the case of Tanzania.

The real exchange rate variable, on the other hand, is positive and significant in South Africa, but insignificant though positive in Kenya and Tanzania. Specifically, the real

exchange rate (lagged two periods) is positive and statistically significant in South Africa. This shows that for South Africa the depreciation of real exchange rate improves the capacity utilisation of existing investment, thereby improving firms' profitability, and eventually boosting investment efficiency.

The foreign savings variable, though positive as expected, did not offer a very satisfactory performance in Kenya and South Africa. The coefficient of foreign savings (lagged two periods) in Kenya is significant at 10%, while the coefficient of foreign savings (lagged three periods) in South Africa is significant at 12%. Unlike Kenya and South Africa, the coefficient of foreign savings is negative and statistically significant in the case of Tanzania. This implies that, while in the case of Kenya and South Africa, an increase in foreign savings increases the average efficiency of investment, in Tanzania an increase in foreign savings reduces the quality of investment. The remaining variables were insignificant in this study.

9.4 Empirical Analysis of the Long-run Causality Test

In this section, the long-run causal relationship between financial development and economic growth in Kenya, South Africa and Tanzania is investigated. The results of this study provide an answer to the hypothesis, which states that financial development is important and leads to economic development. In this study, a long run causality test based on vector error-correction modelling procedure is used. The study also uses Johansen (1988) and Johansen and Juselius' (1990) cointegration procedures to test for the existence and the number of cointegrating vectors. The Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF), and Sarghan Barghava Durbin Watson (SBDW) test procedures are used to test for the order of integration. Financial development in this analysis is proxied by three variables, namely the ratio of broad money to GDP ($M2/GDP$), the ratio of currency to the narrow definition of money ($CC/M1$), and the ratio of bank claims on the private sector to nominal GDP (DCP/GDP). Economic growth, on the other hand, is proxied by real per-capita income (y/N).

9.4.1 Stationarity Tests

As in other time series data, the variables economic growth (y/N), and the proxies for financial development, M2/GDP, CC/M1, and DCP/GDP were tested for stationarity before running the causality test. The results of stationarity tests at level for all the countries are reported in Table 9.18.

Table 9.18: Stationarity Tests of all Variables at Levels

Variable	DW	SBDW	DF	ADF	Stationarity Status
KENYA					
L(y/N)	2.020	0.081	-1.586	-1.450	I (1)
LM2/GDP	1.980	0.243	-1.467	-1.048	I (1)
LCC/M1	1.990	0.487	-0.845	-0.791	I (1)
LDCP/GDP	1.760	0.547	0.091	0.044	I (1)
SOUTH AFRICA					
L(y/N)	2.000	0.690	0.055	-0.209	I (1)
LM2/GDP	2.290	0.037	-6.681	-1.023	I (1)
LCC/M1	2.060	2.268	-2.619	-1.169	I (1)
LDCP/GDP	2.300	0.018	0.972	-1.611	I (1)
TANZANIA					
L(y/N)	2.010	0.426	-0.033	-0.199	I (1)
LM2/GDP	2.120	0.021	1.297	-0.423	I (1)
LCC/M1	1.990	0.487	-0.845	-0.791	I (1)
LDCP/GDP	1.760	0.547	0.091	0.044	I (1)

Critical values: 1% level: DF = -4.32, ADF = -4.12; 5% level: DF = -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90.

As shown in Table 9.18, the DF, ADF, and SBDW shows that all variables included in the causality model in the three countries are non-stationary at level. The next step, therefore, is to difference all the variables once in order to perform stationarity tests on differenced variables as presented in Table 9.19.

Table 9.19: Stationarity Tests on first difference

Variable	DW	SBDW	DF	ADF	Order of Integration
KENYA					
DLy/N	2.020	1.730	-4.045	-3.159	I (1)
DLM2/GDP	1.860	2.010	-4.946	-3.465	I (1)
DLCC/M1	1.990	2.294	-4.851	-3.180	I (1)
DLDCP/GDP	2.000	1.687	-4.122	-3.295	I (1)
SOUTH AFRICA					
DLy/N	1.970	1.759	-4.678	-4.176	I (1)
DLM2/GDP	1.990	2.810	-6.825	-3.876	I (1)
DLCC/M1	2.160	3.000	-9.021	-5.451	I (1)
DLDCP/GDP	1.940	2.604	-6.518	-3.527	I (1)
TANZANIA					
DLy/N	2.000	1.552	-4.186	-3.519	I (1)
DLM2/GDP	1.960	1.520	-3.999	-3.313	I (1)
DLCC/M1	1.940	2.800	-8.110	-5.476	I (1)
DLDCP/GDP	2.000	2.080	-5.386	-3.730	I (1)

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

The results reported in Table 9.19 indicate that for all the study countries, the DF, ADF, and SBDW tests confirm that all variables became stationary after being differenced once. It is, therefore, concluded that the variables are integrated of order one.

9.4.2 Cointegration Analysis

Having confirmed that all variables included in the causality test in the three study countries are integrated of order one, the next step is to independently test the existence of cointegration relationship between each of the proxies for financial development (M2/GDP, CC/M1, and DCP/GDP) and real GDP per capita (y/N). For this purpose, the study uses the Johansen-Juselius (maximum likelihood) cointegration test and the Engle-Granger residual-based cointegration test. If cointegration is detected between these variables, then the existence of Granger causality in either way cannot be ruled out. The

results of Johansen-Juselius cointegration test for the three study countries are presented in Tables 9.20, 9.21, and 9.22³.

9.4.2.1 Johansen-Juselius Maximum Likelihood Cointegration Tests:

Table 9.20: Maximum Likelihood Cointegration Test: KENYA:

Trace Test				Maximum Eigenvalue Test			
Null	Alternative	Statistics	95% Critical value.	Null	Alternative	Statistics	95% Critical value
Cointegration Between Ly/N and LM2/GDP							
$r = 0$	$r \geq 1$	30.8	15.4	$r = 0$	$r = 1$	22.6	14.11
$r \leq 1$	$r = 2$	8.202	3.8	$r \leq 1$	$r = 2$	8.202	3.8
Cointegration Between Ly/N and LCC/M1							
$r = 0$	$r \geq 1$	16.68	15.4	$r = 0$	$r = 1$	16.5	14.1
$r \leq 1$	$r = 2$	0.1823	3.8	$r \leq 1$	$r = 2$	0.1823	3.8
Cointegration Between Ly/N and LDCP/GDP							
$r = 0$	$r \geq 1$	33.32	15.4	$r = 0$	$r = 1$	33.28	14.1
$r \leq 1$	$r = 2$	0.043	3.8	$r \leq 1$	$r = 2$	0.043	3.8

Notes:

- 1) r stands for the number of cointegrating vectors
- 2) The lag structure of VAR is determined by the highest values of the Akaike information criterion and Schwartz Bayesian Criterion.

³ The Akaike and Schwarz criteria were used to determine the number of lags for the cointegration test.

Table 9.21: Maximum Likelihood Cointegration Test: SOUTH AFRICA

Trace Test				Maximum Eigenvalue Test			
Null	Alternative	Statistics	95% Critical value.	Null	Alternative	Statistics	95% Critical value
Cointegration Between Ly/N and LM2/GDP							
$r = 0$	$r \geq 1$	29.18	15.4	$r = 0$	$r = 1$	29.05	14.1
$r \leq 1$	$r \geq 2$	0.1332	3.8	$r \leq 1$	$r = 2$	0.1332	3.8
Cointegration Between Ly/N and LCC/M1							
$r = 0$	$r \geq 1$	49.65	15.4	$r = 0$	$r = 1$	49.18	14.1
$r \leq 1$	$r \geq 2$	0.4649	3.8	$r \leq 1$	$r = 2$	0.4649	3.8
Cointegration Between Ly/N and LDGP/GDP							
$r = 0$	$r \geq 1$	29.18	15.4	$r = 0$	$r = 1$	29.05	14.1
$r \leq 1$	$r \geq 2$	0.1332	3.8	$r \leq 1$	$r = 2$	0.1332	3.8

Notes:

- 1) r stands for the number of cointegrating vectors
- 2) The lag structure of VAR are determined by the highest values of the Akaike information criterion and Schwartz Bayesian Criterion.

Table 9.22: Maximum Likelihood Cointegration Test- TANZANIA

Trace Test				Maximum Eigenvalue Test			
Null	Alternative	Statistics	95% Critical value.	Null	Alternative	Statistics	95% Critical value
Cointegration Between Ly/N and LM2/GDP							
$r = 0$	$r \geq 1$	20.54	15.4	$r = 0$	$r = 1$	20.19	14.1
$r \leq 1$	$r \geq 2$	0.3485	3.8	$r \leq 1$	$r = 2$	0.3485	3.8
Cointegration Between Ly/N and LCC/M1							
$r = 0$	$r \geq 1$	43.25	15.4	$r = 0$	$r = 1$	37.77	14.1
$r \leq 1$	$r \geq 2$	5.479	3.8	$r \leq 1$	$r = 2$	5.479	3.8
Cointegration Between Ly/N and LDGP/GDP							
$r = 0$	$r \geq 1$	38.22	15.4	$r = 0$	$r = 1$	27.68	14.1
$r \leq 1$	$r \geq 2$	10.54	3.8	$r \leq 1$	$r = 2$	10.54	3.8

Notes:

- 1) r stands for the number of cointegrating vectors
- 2) The lag structure of VAR are determined by the highest values of the Akaike information criterion and Schwartz Bayesian Criterion.

The results of Johansen-Juselius cointegration tests reported in Tables 9.20, 9.21 and 9.22 indicate the existence of a stable long-run relationship between financial development indicators and real GDP per capita for all the countries under study. Both the trace test and the maximum eigenvalue statistics reject the null hypothesis of no cointegration in Kenya, South Africa and Tanzania. For Kenya, both the trace test and eigenvalue test reveal that there exist two cointegration vectors between Ly/N and LM2/GDP; one cointegrating vector between Ly/N and LCC/M1; and one cointegrating vector between Ly/N and LDCP/GDP. For South Africa, there exists one cointegrating vector between Ly/N and LM2/GDP; one cointegrating vector between Ly/N and LCC/M1; and one cointegrating vector between Ly/N and LDCP/GDP. For Tanzania, there exist two cointegrating vectors between Ly/N and LCC/M1; two cointegrating vectors between Ly/N and LDCP/GDP, and one cointegrating vector between Ly/N and LM2/GDP.

9.4.2.2 Cointegration Analysis-Bivariate (Engle-Granger Two-Step Method)

The results of cointegration test based on the Engle-Granger (1987) two-step method are presented in Tables 9.23, 9.24, and 9.25.

Table 9.23:Residual based Cointegration Test (Bi-variate) - KENYA

Country	Variables	DW	SBDW	DF	ADF	Cointegration status
Ly/N and M2/GDP	Residual 1	2.02	1.762	-4.490	-3.235	Cointegrated
Ly/N and LCC/M1	Residual 2	1.69	1.771	-4.263	-3.219	Cointegrated
Ly/N and LDCP/M1	Residual 3	2.00	2.973	-6.817	-3.846	Cointegrated

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

Note: All tests are applied on residuals.

Table 9.24:Residual based Cointegration Test (Bi-variate) – SOUTH AFRICA

Country	Variables	DW	SBDW	DF	ADF	Cointegration status.
Ly/N and LM2/GDP	Residual 1	1.99	1.734	-3.918	-3.506	Cointegrated
Ly/N and LCC/M1	Residual 2	1.95	1.766	-3.979	-3.562	Cointegrated
Ly/N and LDCP/GDP	Residual 3	1.96	1.635	-4.412	-4.009	Cointegrated

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

Note: All tests are applied on residuals.

Table 9.25:Residual based Cointegration Test (Bi-variate) - TANZANIA

Country	Variables	DW	SBDW	DF	ADF	Cointegration status.
Ly/N and LM2/GDP	Residual 1	2.00	1.379	-3.801	-3.187	Cointegrated
Ly/N and LCC/M1	Residual 2	2.00	1.419	-3.881	-3.258	Cointegrated
Ly/N and LDCP/GDP	Residual 3	1.99	1.434	-3.916	-3.167	Cointegrated

Critical values: 1% level: DF= -4.32, ADF = -4.12; 5% level: DF= -3.67, ADF = -3.29; 10% level: DF = -3.28, ADF = -2.90

Note: All tests are applied on residuals.

The residual based cointegration test results reported in Tables 9.23, 9.24, and 9.25 show that for the three study countries, the DF and the ADF tests applied on the residuals reject the null hypothesis of non-stationarity.

9.4.3 Results of the Causality Test Based on the Error-correction-Model

Although cointegration indicates the presence of Granger causality, at least in one direction, it does not indicate the direction of causality between variables. The direction of the Granger causality can only be detected through the vector error-correction model (VECM) derived from the long-run cointegrating vectors. In addition to indicating the

direction of causality amongst variables, the VECM enables us to distinguish between short-run and long-run Granger Causality. The F-test of the explanatory variables indicates the “short-run” causal effects, whereas the “long-run” causal relationship is implied through the significance of the t-test of the lagged error-correction term. The results of the error-correction model between the various proxies of financial development and economic growth in Kenya, South Africa, and Tanzania are displayed in Tables 9.26, 9.27, and 9.28.

Table 9.26: Causality Test Between $\Delta L_y/N$ and $\Delta LM_2/GDP$
KENYA

Variables in equation	Dependent Variables	
	$\Delta L_y/N$	$\Delta LM_2/GDP$
$\Delta L_y/N-1$	0.4240 (1.752)*	-
$\Delta L_y/N-5$	-	0.6480 (2.067)**
$\Delta LM_2/GDP-1$	-	0.6202 (2.146)**
$\Delta LM_2/GDP-4$	0.4193 (1.932)*	-
ECM_{t-1}	(-2.436)**	(-3.080)***
F-Test	1.3165 (0.3166)	1.604 (0.2192)
R^2	0.45	0.55
DW	1.90	2.28

SOUTH AFRICA

Variables in equation	Dependent Variables	
	$\Delta L_y/N$	$\Delta LM_2/GDP$
$\Delta L_y/N-1$	-0.0794 (-0.249)	-
$\Delta L_y/N-4$	-	0.4076 (1.656)*
$\Delta LM_2/GDP-1$	-0.0335 (-0.124)	-
$\Delta LM_2/GDP-2$	-	0.6330 (2.703)**
ECM_{t-1}	(0.995)	(-2.483)**
F-Test	0.594 (0.7915)	3.3995 (0.2511)
R^2	0.45	0.97
DW	1.90	2.10

TANZANIA

Variables in equation	Dependent Variables	
	$\Delta Ly/N$	$\Delta LM_2/GDP$
$\Delta Ly/N-1$	0.4665 (1.342)	-
$\Delta Ly/N-3$	-	0.2599 (0.403)
$\Delta LM_2/GDP-1$	1.2563 (2.895)**	-0.4321 (-0.634)
$\Delta LM_2/GDP-2$	-	-
ECM _{t-1}	-2.728**	0.763
F-Test	2.14 (0.1433)	0.776 (0.6518)
R ²	0.76	0.44
DW	2.11	2.20

Table 9.27: Causality Test Between $\Delta Ly/N$ and $\Delta LCC/M1$
KENYA

Variables in equation	Dependent Variables	
	$\Delta Ly/N$	$\Delta LCC/M1$
$\Delta Ly/N-1$	1.1293 (2.212)**	7.1571 (2.832)**
$\Delta Ly/N-2$	-	-
$\Delta LCC/M1-1$	0.5143 (3.764)***	-
$\Delta LCC/M1-3$	-	-0.3817 (-1.234)
ECM _{t-1}	-0.754	-2.394**
F-Test	4.5661 (0.0289)	0.6869 (0.5803)
R ²	0.74	0.17
DW	2.02	1.93

SOUTH AFRICA

Variables in equation	Dependent Variables	
	$\Delta Ly/N$	$\Delta LCC/M1$
$\Delta Ly/N-4$	0.9681 (1.579)	62.702 (1.948)*
$\Delta LCC/M1-1$	0.0263 (0.740)	5.454 (1.535)
ECM _{t-1}	(0.853)	(-1.603)*
F-Test	0.9045 (0.6242)	1.34 (0.3980)
R ²	0.83	0.79
DW	2.22	2.21

TANZANIA

Variables in equation	Dependent Variables	
	$\Delta Ly/N$	$\Delta LCC/M1$
$\Delta Ly/N-2$	5.6165 (2.452)**	0.3583 (1.997)*
$\Delta LCC/M1-1$	7.7824 (2.104)**	-
$\Delta LCC/M1-2$	-	0.0695 (0.180)
ECM _{t-1}	(-2.559)**	(-2.389)**
F-Test	1.001 (0.6121)	3.99 (0.049)
R ²	0.90	0.90
DW	2.44	1.93

**Table 9.28: Causality Test Between $\Delta Ly/N$ and $\Delta LDCP/GDP$
KENYA**

Variables in equation	Dependent Variables	
	$\Delta Ly/N$	$\Delta LDCP/GDP$
$\Delta Ly/N-1$	-	1.1111 (1.971)*
$\Delta Ly/N-2$	1.0782 (3.251)***	-
$\Delta LDCP/GDP-1$	-	1.3940 (2.278)**
$\Delta LDCP/GDP-3$	0.2276 (1.112)	-
ECM _{t-1}	(-0.133)	(-3.085)**
F-Test	2.8652 (0.0898)	2.2014 (0.1777)
R ²	0.64	0.72
DW	2.09	2.32

SOUTH AFRICA

Variables in equation	Dependent Variables	
	$\Delta Ly/N$	$\Delta LDCP/GDP$
$\Delta Ly/N-1$	-0.1546 (-0.545)	-
$\Delta Ly/N-6$	-	0.8069 (2.096)**
$\Delta LDCP/GDP-2$	-	0.4001 (2.392)**
$\Delta LDCP/GDP-4$	-0.1445 (-0.986)	-
ECM_{t-1}	(0.879)	(-2.545)**
F-Test	0.7270 (0.6673)	3.23 (0.0788)
R^2	0.35	0.88
DW	2.27	2.65

TANZANIA

Variables in equation	Dependent Variables	
	$\Delta Ly/N$	$\Delta LDCP/GDP$
$\Delta Ly/N-1$	0.4932 (1.989)*	-
$\Delta Ly/N-2$	-	3.5293 (8.002)***
$\Delta LDCP/GDP-1$	0.3785 (2.390)**	0.3782 (1.939)*
ECM_{t-1}	(-2.197)**	(-5.035)***
F-Test	1.92 (0.4023)	10.67 (0.0003)
R^2	0.59	0.90
DW	2.01	2.14

9.4.3.1 Causality Test Between DLy/N and DLM_2/GDP

The results reported in Table 9.26 reveal that for Kenya the error-correction term is negative and statistically significant irrespective of whether the causality is defined from DLy/N to DLM_2/GDP or DLM_2/GDP to DLy/N . This finding supports a long-run bi-directional causality (feedback) between DLy/N and DLM_2/GDP . In addition, further support for the direction of causality is also evidenced through the statistical significance

of the explanatory variables. The F-statistics in both DLy/N and DLM_2/GDP equations are statistically significant.

The results for South Africa reveal that there is a one directional causality running from DLy/N to DLM_2/GDP . As reported in Table 9.26, both the error-correction term and the F-statistics are insignificant in the DLy/N equation, but statistically significant in the DLM_2/GDP equation. This shows that for South Africa, DLy/N causes DLM_2/GDP both in the short- run and long run.

For Tanzania, the error-correction term in the DLy/N equation is negative and statistically significant. Likewise, the F-statistics is statistically significant, thus confirming both the short-run and long run causality from DLM_2/GDP to DLy/N . However, both the error-correction term and F-statistics reject the causality from DLy/N to DLM_2/GDP . This is evidenced by the insignificant error-correction term and F-statistics in the DLM_2/GDP equation.

9.4.3.2 Causality Test Between DLy/N and $DLCC/M_1$

As reported in Table 9.27, there is a unidirectional causality between DLy/N and $DLCC/M_1$ in the case of Kenya and South Africa, and a bi-directional causality in the case of Tanzania. For Kenya, the error-correction term is statistically insignificant in the DLy/N equation, but statistically significant in the $DLCC/M_1$ equation. This shows that, for Kenya, the causality runs from DLy/N to $DLCC/M_1$.

For South Africa, the error-correction term in the DLy/N equation rejects the causality from $DLCC/M_1$ to DLy/N . The error-correction term is positive and statistically insignificant. However, the causality from Ly/N to $DLCC/M_1$ is accepted in the $DLCC/M_1$ equation. Both the F-statistics and error-correction term in the $DLCC/M_1$ equation are significant, although the latter is only significant at 10%. It is therefore

concluded that for South Africa the causality between $DLCC/M_1$ and DLy/N runs from DLy/N to $DLCC/M_1$, both in the short-run and long run.

As opposed to Kenya and South Africa, Tanzania is characterised by a bi-directional relationship between $DLCC/M_1$ and DLy/N . The results reported in Table 9.27 show that the error-correction terms in the DLy/N and $DLCC/M_1$ equations are negative as expected and statistically significant. Likewise, the significant F-statistics in both DLy/N and $DLCC/M_1$ equations reveal a short-run causality in both directions. It is therefore concluded that for Tanzania both DLy/N and $DLCC/M_1$ Granger cause each other.

9.4.3.3 Causality Test Between DLy/N and $DLDCP/GDP$

The causality test results between DLy/N and $DLDCP/GDP$ reveal a uni-directional causality between DLy/N and $DLDCP/GDP$ in Kenya and South Africa, and a bi-directional causality in the case of Tanzania. In both Kenya and South Africa, the direction of causality is from DLy/N to $DLDCP/GDP$. In both countries, the error-correction terms in the $DLDCP/GDP$ equation are negative and statistically significant. Likewise, the F-statistics in the $DLDCP/GDP$ equation is statistically significant in both countries.

Although the F-statistic in the DLy/N equation is significant in the case of Kenya, the error-corrections in the DLy/N in both Kenya and South Africa are statistically insignificant. This implies that for Kenya and South Africa, the direction of the long run causality is from DLy/N to $DLDCP/GDP$. As opposed to Kenya and South Africa, the causality test based on Tanzanian data reveals that for Tanzania, both the DLy/N and $DLDCP/GDP$ Granger cause each other. As can be seen from Table 9.28, the error-correction terms in the DLy/N and $DLDCP/GDP$ equations are negative and statistically significant. This confirms a long-run causal relationship running from both directions. This evidence is further supported by the F-statistics, which is significant in both DLy/N and $DLDCP/GDP$ equations.

The results of the long-run causality test between the three proxies of financial development and economic growth in Kenya, South Africa and Tanzania are summarised in Table 9.29.

9.4.3.4 SUMMARY OF CAUSALITY TEST

Table 9.29: Summary Of Causality Test

Country	Variables	Long-run Causality	General Response
KENYA	$\Delta Ly/N$ and $\Delta LM2/GDP$	- Bi-directional causality (Both financial development and economic growth complement each other).	-Supply-Leading and Demand-Following response.
	$\Delta Ly/N$ and $\Delta LCC/M1$	-Economic growth Granger causes financial development.	-Demand- Following response.
	$\Delta Ly/N$ and $\Delta LDCP/GDP$	- Economic growth Granger causes financial development.	- Demand – Following response.
SOUTH AFRICA	$\Delta Ly/N$ and $\Delta LM2/GDP$	- Economic growth Granger causes financial development.	- Demand – Following response.
	$\Delta Ly/N$ and $\Delta LCC/M1$	- Economic growth Granger causes financial development.	- Some evidence of Demand– Following response.
	$\Delta Ly/N$ and $\Delta LDCP/GDP$	- Economic growth Granger causes financial development.	- Demand – Following response.

TANZANIA	$\Delta Ly/N$ and $\Delta LM2/GDP$	- Financial development Granger causes Economic growth.	- Supply – Leading response.
	$\Delta Ly/N$ and $\Delta LCC/M1$	- Bi-directional Causality (Both financial development and economic growth complement each other).	-Evidence of supply-leading and Demand-following.
	$\Delta Ly/N$ and $\Delta LDCP/GDP$	- Bi-directional Causality (Both financial development and economic growth complement each other).	-Evidence of supply-leading and Demand-following.

9.4.4 Analysis of Long-run Causality Test

In this section, the direction of causality between financial development and economic growth in the case of three sub-Saharan African countries is investigated. In order to assess the impact of different aspects of financial development on economic growth, three alternative financial development proxies have been used. These proxies include the ratio of broad money to GDP (M_2/GDP), the ratio of currency to the narrow definition of money (CC/M_1), and the ratio of bank claims on the private sector to GDP (DCP/GDP). Economic growth, on the other hand, is proxied by real per capita income (y/N). The causality tests have been carried out in the context of cointegration based on the Johansen-Juselius maximum likelihood test and vector error-correction mechanisms.

The empirical results show that the direction of causality between financial development and economic growth is sensitive to the choice of measurement for financial development in the study countries. In addition, the strength and clarity of the causality evidence is found to vary across countries. When the ratio of broad money to GDP (M_2/GDP) is used as a proxy for financial development, bi-directional causality evidence is found in Kenya, while distinct demand- following and supply-leading hypotheses are confirmed in South Africa and Tanzania, respectively. When the ratio of currency to narrow definition of money (CC/M_1) is used, a bi-directional causality evidence is found

in Tanzania, while in Kenya and South Africa the demand-following hypothesis is found to be dominant. Finally, when the ratio of bank claims on the private sector to GDP (DCP/GDP) is used as a proxy for financial development, a demand-following response is found in the case of Kenya and South Africa, while a bi-directional causality is evidenced in Tanzania.

From the above results, it is clear that a wholesale 'supply-leading' or 'demand-following' hypothesis has been rejected in all the study countries except in South Africa, where a distinct demand-following response seems to prevail. This means that it is not possible to draw a firm conclusion as to whether the demand-following or supply-leading hypotheses are predominant in the case of Kenya and Tanzania. However, on balance, the demand-following hypothesis is found to be stronger than the supply-leading in Kenya with the proxies for ratio of currency to the narrow definition of money and the ratio of bank claims on the private sector to GDP both indicating that economic growth causes financial development. The opposite is, however, true in the case of Tanzania. For Tanzania, the supply-leading hypothesis is stronger than the demand-following. While the two proxies, namely the ratio of currency to the narrow definition of money and the ratio of bank claims on the private sector to GDP (DCP/GDP) indicate a bi-directional causality, the ratio of broad money to GDP (M_2/GDP) gives unambiguously strong support for the supply-leading hypothesis in Tanzania. This finding is consistent with Jung (1986), Chrichton and De Silva (1989), King and Levine (1993), Gregoria and Guidotti (1995), Levine (1997), Rajan and Zingale (1998), Choe and Moosa (1999), Temple (1999), and Levine et al (2000).

CHAPTER 10

CONCLUSION AND POLICY IMPLICATIONS

10. Introduction

This chapter concludes the study, offers policy implications based on the results obtained in the earlier chapters, and indicates areas of further research. Section 10.1 presents a brief summary of the study. Section 10.2 discusses very briefly, the main findings of the study, while section 10.3 presents policy implications and recommendations. Finally, sections 10.4 and 10.5 highlight the limitations of the study and areas for further research, respectively.

10.1 Summary of the Study

In this study, the theoretical and empirical underpinning of financial liberalisation were explored. The relevance of financial liberalisation in sub-Saharan African countries as well as the controversies, challenges, and paradoxes that have emerged in the literature since the onset of financial liberalisation in the 1970s, have been investigated.

In pursuit of this broad objective, a number of specific objectives were pursued. The first objective was to assess the relevance of financial liberalisation in the selected SSA countries. The second objective was to examine the various linkages between financial liberalisation and economic growth. The third objective was to empirically test the impact of financial liberalisation on economic growth in the study countries through savings, financial deepening, and investment efficiency. The fourth objective was to examine the long-run inter-temporal causal relationship between financial development and economic growth in the study countries.

The study uses specific individual countries' experiences (i.e. case studies) to examine further the benefits and pitfalls of financial liberalisation. Three countries have been incorporated in this study, namely Kenya, South Africa and Tanzania. The justification for the choice of these countries is two-fold. First, the selection represents two countries with strong financial systems, i.e. South Africa and Kenya and a country with relatively weak financial system, i.e. Tanzania. Second, the selection includes countries, which adopted a gradualist approach to financial liberalisation, i.e. Kenya and Tanzania and a country, which opted for relatively 'rapid' financial reforms, i.e. South Africa.

On the empirical front, five hypotheses were tested. The first hypothesis is that there is a positive relationship between interest rate liberalisation and economic growth. The second hypothesis is that money and physical assets are complementary within the context of real money demand and savings functions. The third hypothesis is that financial liberalisation (proxied by interest rate liberalisation) leads to financial deepening. The fourth hypothesis is that a rise in the real interest rate increases the average efficiency of investment. Finally, the fifth hypothesis is that financial development, which results from financial liberalisation, leads to economic growth, both in the short-run and in the long-run.

In this study, four models were used to investigate empirically the impact of financial liberalisation on economic growth. The first model used is the McKinnon's complementarity hypothesis model, which incorporates the real money demand function and savings function. This model aims to examine the relevance of McKinnon's complementarity hypothesis, which gauges money and physical capital in the finance motive to investment. The second model is the financial deepening model, while the third model is the investment efficiency model. Indeed, the McKinnon's complementarity hypothesis cannot be sustained if financial liberalisation proxied by interest rate liberalisation does not result in

financial deepening and investment efficiency. The fourth model is the long-run Granger causality model. The result of Granger causality was supposed to corroborate further the efficacy of financial liberalisation in the study countries. Moreover, there is a common belief that financial liberalisation may only ambiguously lead to economic growth if financial development, which results from financial liberalisation does not Granger cause economic growth.

In order to examine the dynamic linkages between financial liberalisation, savings, financial deepening, investment efficiency, and economic growth, a number of econometric techniques were employed. The Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF), and Sargan-Bhargava-DurbinWatson (SBDW) class of tests were used to test for the stationarity of the variables used in this study, while the two-stage residual test based on the Engle-Granger (1987) and the maximum likelihood cointegration test based on the Johansen-Juselius were used to test the existence of cointegration and the number of cointegration vectors, respectively. Throughout this study, an error-correction mechanism associated with Hendry (1979, 1986), and Hendry and Ericsson's (1991) general to specific model has been used. Finally, the error-correction based causality test is used to examine the long-run relationship between financial development and economic growth.

10.2 Summary of Empirical Findings and Conclusions

The overall empirical findings of this study reveal that:

1. Contrary to the results obtained in some previous studies, an error-correction modelling approach indicates a strong support for McKinnon's complementarity hypothesis in Kenya, South Africa and Tanzania. This applies irrespective of whether money demand and savings functions are estimated in static

cointegration regressions or in the dynamic formulation (error-correction models). For Kenya and South Africa, the coefficients of the savings rate in the money demand function and the lagged real money balances in the savings function are both positive and statistically significant. For Tanzania, the coefficients of the lagged savings rate in the money demand function and lagged real money balances in the savings function are both positive and statistically significant. The study therefore concludes that money and physical capital are complementary in the selected SSA countries. Thus, the more attractive financial assets are, the greater the incentives to invest in Kenya, South Africa and Tanzania. It is reiterated in this study that the majority of the previous studies on McKinnon's complementarity suffer from three major shortcomings. First, the models used were misspecified. Second, the studies did not take into consideration the reversibility of McKinnon's complementarity hypothesis. Third, the majority of the studies did not take into consideration the modern time series properties.

2. The impact of foreign savings on domestic savings varies across countries. For Kenya and Tanzania, there is distinct substitutability between foreign savings and domestic savings. The coefficients of foreign savings in the gross domestic savings in Kenya and Tanzania are both negative and statistically significant. However, for South Africa the two sources of savings are complementary rather than substitutes. This is evidenced by the positive and significant coefficient of the lagged foreign savings in the domestic savings function.

3. The growth rate of real income has little influence on the savings rate in Kenya, South Africa and Tanzania. This is revealed by the coefficients of the real GDP and growth rate of real GDP in the savings function, which turned out to be either negative or statistically insignificant for all three countries. However, these results are not surprising because, as Fry (1991) points out, acceleration in the

growth rate of real income or real per capital income will only raise the savings rate by a smaller amount if the dependency ratio is higher. In this study, the dependency ratio is found to have a significant effect on the savings rate in the study countries. The adverse effects of high dependency ratios are found to be severe in South Africa, moderate in Tanzania, and mild in Kenya.

4. There is abundant support for the positive impact of real interest rates on financial deepening in the three study countries. The deposit rate in the financial deepening function is found to be positive and statistically significant in Kenya, South Africa and Tanzania. The results also reveal that the coefficients of the real GDP and the lagged real money balances in the financial deepening function are confirmed to be positive and statistically significant as expected in all the study countries. It is therefore worth concluding that interest rate reform, which result from financial liberalisation leads to financial deepening. This finding lends more support for the proposition that financial liberalisation plays a positive role in economic growth.

5. The impact of interest rate reforms on investment efficiency in the study countries is not unanimous. While the coefficient of the real deposit rate in the investment efficiency function (IOCR) is positive and statistically significant in Kenya, it is insignificant though positive in South Africa and Tanzania. This shows that, while financial liberalisation in Kenya has succeeded in transferring capital from projects with low productivity to projects with high productivity, financial liberalisation in South Africa and Tanzania have not significantly transferred capital from projects with low returns to projects with high returns. However, in general, there is widespread support for a positive relationship between financial liberalisation and investment efficiency in the study countries. This corroborates further the positive impact of financial liberalisation on economic growth in the study countries.

6. The empirical results on the direction of causality between financial development and economic growth indicate that the long-run causal relationship between these two variables is sensitive to the choice of measurement for financial development in the study countries. In addition, the strength and clarity of the causality evidence is found to vary across countries. When the ratio of broad money to GDP (M_2/GDP) was used as a proxy for financial development, a bi-directional causality evidence was revealed in Kenya, a distinct demand-following response in South Africa, and a distinct supply-leading response in Tanzania. When the ratio of currency to narrow definition of money (CC/M_1) was used, a bi-directional causality was evidenced in Tanzania, while a distinct demand-following response was evidenced in Kenya and South Africa. Finally, when the ratio of bank claims on the private sector to GDP (DCP/GDP) was used, a demand following response was evidenced in Kenya and South Africa, while in Tanzania a bi-directional causality was dominant. On balance, a demand-following response was found to be stronger in South Africa and Kenya, while for Tanzania a supply-leading response was found to be stronger.

10.3 Conclusions and Policy Implications

In this study, an attempt has been made to investigate the role of financial liberalisation on economic growth in three SSA countries through its influence on savings, financial deepening, and investment efficiency. In addition, the study investigated the long-run causal relationship between financial development and economic growth in the study countries. The study has used modern time series methods to examine the dynamics of financial liberalisation in the study countries, while taking into account individual country circumstances, including the institutional structure of the financial system and policy regimes. The study was motivated by the current debate on the efficacy of financial liberalisation, on the one hand, and the painful experience some of these countries have had with

the liberalisation of financial sector on the other. Based on this study's findings, the following conclusions can be reached.

1. The study suggests that there is a potential positive relationship between financial liberalisation and economic growth in the study countries. However, the relationship is an indirect one. Financial liberalisation impacts on economic growth through increased savings, financial deepening and investment efficiency. In addition, the study reveals that the strength and clarity of the positive role of financial liberalisation on economic growth vary from country to country. Specifically, the study found money and physical capital to be complementary rather than substitutes in all the study countries. This shows that the more attractive financial assets are in these countries, the greater the incentives to invest. In other words, when financial assets are less attractive, households are discouraged from holding them, which inhibits the process of capital formation. It is therefore recommended in this study that policies that are likely to keep real interest rate positive or make financial assets more attractive be pursued.
2. The study also found that financial liberalisation, which has been pursued in the study countries, has resulted in financial deepening. This positive correlation between financial liberalisation and financial depth lends more support for positive real interest rates, which serve as a price incentive for deposit-mobilisation in developing countries.
3. The impact of financial liberalisation on investment efficiency is not unanimous in the study countries. Although for Kenya the current financial reforms have contributed somewhat towards the investment efficiency, for South Africa and Tanzania the reforms have had an insignificant influence on the quality of investment. This suggests that for South Africa and Tanzania, the mechanism through which financial liberalisation affects economic growth is

based on the volume rather than efficiency of investment. For Kenya, unlike South Africa and Tanzania, the gains from financial liberalisation seem to stem from the increased efficiency in the allocation of investment rather than from a larger volume of investment.

4. On the intertemporal causality between financial development and economic growth, the results were indistinct. The results were sensitive to the choice of the financial development indicator. In addition, the causal relationship varies largely across countries and over time. Indeed, it would be inconsistent to assume a 'wholesale' acceptance of the view that 'financial development leads economic growth' just as there can be no 'wholesale' acceptance of the view that 'financial development follows economic growth' in the study countries. In general, financial development seems to Granger cause economic growth unambiguously only in Tanzania. In Kenya and South Africa the overwhelming response was in favour of a demand-following causality pattern.

The results proclaim that for Tanzania financial sector development stimulates economic growth by transferring resources from the traditional (non-growth) sector to the modern sector of the economy. The sector also promotes and stimulates an entrepreneurial effort in the modern sector of the economy. However, for Kenya and South Africa, it is the growth sector that stimulates the development of the financial sector. In other words, it is the growth in the real sector, which induces the expansion of financial system. This result, though contrary to the majority of the previous studies, is consistent with Patrick's (1966) hypothesis, which argues that the direction of causality between financial development and economic growth changes over the course of development. When the economy is young, i.e. before sustained modern economic growth gets underway, financial development is likely to Granger cause economic growth. However, as modern economic growth occurs, its demands for various new

financial services materialise, thereby making the demand-following response dominant. This indicates that for Kenya and South Africa the growth of the real sector stimulates higher participation in the financial markets thereby facilitating the creation and expansion of financial institutions. The study therefore recommends that for Kenya and South Africa the real sector of the economy should be developed further in order to stimulate the financial sector. However, for Tanzania there is need for further development of the financial sector in order to make the economy more monetised.

5. This study reveals that, while the beneficial effects of financial liberalisation are overwhelming in the study countries, these benefits can only be realised when timing, speed, and sequencing of financial reforms are taken into consideration. It is reiterated here that the full implementation of external financial liberalisation, and especially of capital market liberalisation, in the study countries, should wait until a sustained macroeconomic stability and domestic deregulation are achieved.

6. Based on the individual countries' experiences, the study reveals that Kenya, South Africa and Tanzania, as in other sub-Saharan African countries, have had some painful experiences with financial liberalisation. These include high interest rates, high inflation rate, unstable exchange rates, Banking crisis, wide spreads between lending and deposit rates, declining trends in savings, investment, credit allocated to the private sector, and dwindling economic growth, among others. However, the magnitude of these effects differs from country to country and overtime.

7. The study also revealed that financial markets in the study countries, just like in other developing countries, are prone to market failures, which serve as an obstacle to the success of financial liberalisation. To this end, some mild

government controls that improve the financial markets' functions are recommended. Specifically, there is a need for some limited financial restraints in order to ascertain the overall efficiency of the financial sector in the study countries. With financial restraints, the government can create policies, which enhance the efficiency in the banking sector through some friendly interventions. While financial repression policy is based on the government extracting rents from the private sector to meet its deficits, a 'friendly financial restraint' has a distinct beneficial role, i.e. it creates rent opportunities in the private sector. Moreover, since the free market paradigm cannot handle the complexities of financial markets, a focus towards an efficiently designed regulation in the form of 'restraints' is likely to offer a second best solution. It is further recommended here that 'friendly' financial restraints should be maintained as an integral component of a financial liberalisation package. This should continue until the achievement of both domestic deregulation and macroeconomic stability are attained. However, this policy should be interpreted with caution and should not supersede the ultimate goal of achieving full financial liberalisation.

8. This study found that there is potential for what is termed 'upward financial repression' in the study countries. This has been exacerbated by the unlimited faith that the governments have in positive real interest rates. Under upward financial repression governments attempt to raise real interest rates to positive levels or raise the nominal interest rates above the inflation level even if the market-clearing real rate is negative. When this policy prevails, borrowing for investment purposes may be crowded out by insolvent firms, who are not deterred from borrowing by the high cost of borrowing, and who borrow only to pay interest on debt. Since the demand for loanable funds in this case responds positively with the increase in interest rates, the end result will be an artificially high interest rate, which may be just as damaging. Also, when interest rates climb too high, there is a tendency for banks to attract riskier borrowers (adverse

selection) and give the current pool of borrowers incentives to choose riskier projects (adverse incentives), especially when information asymmetry is predominant¹. This was experienced in Kenya and South Africa during the 1980s.

10.4 Limitations of the Study

Although all efforts have been made to make this study analytically defensible, like many other scientific research studies, it suffers from a number of weaknesses.

First, the study used annual data for empirical investigation, which could have reduced the precision of the parameter estimates. Under normal circumstances, quarterly data are more desirable. However, given that quarterly data for most of the variables in the study countries were not readily available, annual data was resorted to.

Second, a number of variables used in this study were either derived or proxied. These include: savings rates, investment efficiency, and foreign savings. Savings variables, for example, are not reported in a number of developing countries. As a result, most gross domestic saving data are derived as a residual, either by taking the difference between domestic product and consumption expenditure, or by deducting the current account deficit from gross domestic investment. It is widely believed that in either case such estimates can be subject to substantial measurement error.

Third, while conducting the empirical investigation between financial liberalisation and other macroeconomic variables, interest rate liberalisation was used as a proxy for financial liberalisation. Although the interest rate is the most

¹ This argument has been extensively supported by Stiglitz and Weiss (1981), Stiglitz (1994), and Cho (1986).

appropriate proxy in this case, it is not the only proxy for financial liberalisation. There are other proxies, which could as well be used, e.g. constructing a financial liberalisation variable based on observed policy changes. However, given the difficulties associated with the use of policy changes as a proxy for financial liberalisation, the interest rate still remains the most appropriate proxy for financial liberalisation.

Even though these limitations could have had an adverse effect on the empirical results and evidence adduced in this study, it is assumed that their effects are minimal and may not significantly influence the theoretical and empirical findings of this study.

10.5 Areas for Further research

The following are some of the areas that require further research.

1. The empirical component of this study used the real deposit rate as a proxy for financial liberalisation. Future researchers in this field could consider other proxies for financial liberalisation. Specifically, further research could be conducted using observed policy changes as a proxy for financial liberalisation in order to confirm whether the results will differ fundamentally from those reported in this study.
2. When empirically investigating the role of financial liberalisation in the study countries, the study restricted itself to the domestic interest rate, i.e. other types of interest rates were not considered. However, it is widely accepted that when foreign interest rates are higher than domestic interest rates, economic agents will be motivated to move from local assets to foreign assets. This situation, if prevalent, may lead to a fall in domestic savings, and thereafter to a fall in domestic investible funds. As a result, investment as well as output will fall. Future research could be directed towards testing whether the disparity between foreign and domestic interest rates has any significant effect.
3. This study used cointegration and vector error-correction mechanisms to examine the direction of Granger causality between financial development and economic growth. Although this is one of the latest techniques currently used to test the causal related issues, future studies could pursue other alternative tests like those suggested by Sims (1972), Pierce and Haugh (1977), and Geweke (1981), in order to confirm whether their results will differ from the one reported in this study.

Also, the study used three proxies for financial development and one proxy for economic growth. Further research in this area could use other proxies for financial development and economic growth to establish whether the causal pattern will change. Likewise, researchers could also lengthen the time series data to ascertain whether causal patterns evolve over time in the same country.

BIBLIOGRAPHY

- Abayomi, A.A. and Ikhide S.I. (1997), "Why Should Financial Liberalisation induce Financial Crisis?" *Savings and Development* 21(3): 261-274.
- Abebe, A. (1990), "Financial Repression and Its Impact on Financial Development and Economic Growth in the African Least Developed Countries", *Savings and Development* 24(1).
- Adam, C.S. (1995), "Fiscal Adjustment, Financial Liberalisation and the dynamics of Inflation: Some Evidence from Zambia", *World Development* 23 (5): 735-750.
- Adam, C.S. (1997), "African Economic Research Consortium Workshop in Time Series Econometrics", Nairobi (May).
- Adedoyin, Soyibo (1997), "Banking Sector Reforms in Africa: Effects on Savings, Investment and Financial Development", *African Development Review* 9(1): 52-76.
- Adera, A. (1990), "Financial Repression and Its Impact on Financial Development and Economic Growth in the African LDCs", *Savings and Development* 14(1): 55-79.
- Adewumni, Wole (1981), "Money Matters in Economic Development: Some Tentative Empirical Evidence from Nigeria", *Savings and Development* 5, No. 2-3.
- Agarwala, R.K. (1983), "Price distortions and Growth in Developing Countries", World Bank Staff Working Paper No. 575, Washington, D.C.
- Ajewole, J.O. (1989), "Determination of Demand for Money for the case of Nigeria's Economy", *Savings and Development* 13(2): 183-198.
- Akaike, H. (1969a), "Statistical Predictor Identification", *Annals of the Institute of Statistical Mathematics* 21: 203-217.
- Akaike, H. (1969b), "Statistical Autoregressions for Predictions", *Annals of the Institute of Statistical Mathematics* 21: 243-247.

- Akerlof, G. and Romer, P. (1993) "Looting: The Economics Under world of Bankruptcy for Profit", *Brooking Papers on Economic Activities*.
- Akinboade, O.A. (1998), "Financial Development and Economic Growth in Botswana: A Test for Causality", *Savings and Development* 3 (22): 331-348.
- Alan, Roe and Nii, Sowa (1994), "From Direct to Indirect Monetary Control in sub-Saharan Africa", *Journal of African Economies (AERC Supplement)* 6 (1): 212-64.
- Alweendo, T.K. (2000), "Inflation Targeting", Bank of Namibia.
- Aoki, Masanao (1987) "An Alternative Measure of Random Walk Components in the Series", *Economics Letters* (July): 227-230.
- Arestis, P. and Demetriades, P. (1997), "Financial Development and Economic Growth: Assessing the Evidence", *The Economic Journal* 107: 783-799.
- Arestis, P, Demetriades, P. and Luintel, K.B. (2001), "Financial Development and Economic Growth: The Role of Stock Markets" *Journal of Money, Credit and Banking* 33(1): 16-41.
- Arrieta, Gerardo M. (1988), "Interest Rates, Savings and growth in LDCs: An Assessment of Recent Empirical Research" *World Development* 16(5): 589-605.
- Aron, J. and Muellbauer J. (2000), "Estimating Monetary Policy Rules for South-Africa", Central Bank of Chile Working Papers.
- Aschauer, D.A. (1989), "Is Public Expenditure Productive"? *Journal of Monetary Economics* 23: 177-200.
- AsimaKopoulos, A. (1986), "Finance, Liquidity, Savings and Investment", *Journal of Post-Keynesian Economics* 9 (Fall).
- Athukorala, P. and Rajapatirana, S. (1993), "Liberalisation of the Domestic Financial Market: Theoretical Issues with Evidence from Srilanka", *International Economic Journal* Winter 7(4): 17-32.

- Atiyas, Izak (1992), "Financial Reform and Investment Behaviour in Korea: Evidence from Panel Data", Development Economics Department, World Bank, Washington, D.C.
- Atiyas, I., Caprio, G. Jr. and Hanson, A.J. (1996), *An overview of Reform Episodes*, in G. Caprio, Jr., A. Izak and J. Hanson (Eds), *Financial Reform: Theory and Practice*, New York, Cambridge University press.
- Atje, R. and Jovanovic, B. (1993), "Stock Markets and Development", *European Economic Review* 37: 634-40.
- Azam, Jean, P. (1996), "Savings and Interest Rate, the case of Kenya", *Savings and Development* 20(1): 33-44.
- Azariadis, Costas and Bruce D. Smith (1996), "Private Information, Money and Growth: Indeterminacy, Fluctuations and the Mundell-Tobin Effect" *Journal of Economics Growth* 1: 309 – 32.
- Bacchetta, P. (1989), "Liberalisation of Capital Movements and of the Domestic Financial System", Brandeis University, Department of Economics (225).
- Baghestani, H. and McNow, R. (1994), "Do Revenues on Expenditures Respond to Budgetary Disequilibria?" *Southern Economic Journal* 60:311-322.
- Balassa, B. (1990), "The Effects of Interest Rates on Savings in Developing Countries", *Banca Nazionale del Lavoro Quarterly Review* 172:101-118.
- Bandiera, O., Caprio, G., Honohan, P. and Schiantarelli, F. (1999), "Does Financial Reforms Raise Or Reduce Savings?" Policy Research Working Paper No. 2062, World Bank.
- Banerjee, A., Dolado, J., Galbraith, J.W. and Hendry, D. (1993), *Cointegration, Error Correction and the Econometric Analysis of Non-stationary Data*, Oxford University Press.
- Bank of Tanzania (Annual Report), Various Issues.

- Bank of Tanzania (1999) Press Release of 23rd (August).
- Bank of Tanzania: Economic and Operations Report, Various Issues.
- Bank of Tanzania: Its Functions and Monetary Policy Instruments, Dar-es-salaam, May 1997.
- Barro, R. (1989), "The Ricardian Approach to Budget Deficits", *Journal of Economic Perspectives* 3 (2): 37-54.
- Basle (1993), "Measurement of Bank's Exposure to Interest Rate Risk", Consultative Proposal, Committee on Banking Supervision (April).
- Basle (1997), "Core principles for effective Banking Supervision", Basle Committee on Banking Supervision (September).
- Beck, T., Ross L. and Norman, L. (2000), "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economics* (Forthcoming).
- Beckerman, P. (1988), "The Consequences of "Upward Financial Repression" *International Review of Applied Economics* 2 (1): 233-49.
- Behrman, J. and C. Sussangkarn (1989), "Do the Wealthy Save less? Cited in Schmidt-Hebbel, et al (1992), op. cit.
- Bencivenga, V.R., Smith, B.D. and Starr, R.M. (1996), "Equity Markets, Transaction Costs and Capital Accumulation: An Illustration" *World Bank Economic Review* 10 (May): 241-65.
- Bencivenga, V.R. and Smith, B.D. (1991), "Financial Intermediation and Endogenous Growth" *Review of Economic Studies* 58: 195-209.
- Berger, A.N., Herring, R.J. and Szego, G.P. (1995), "The Role of Capital in Financial Institutions", *Journal of Banking and Finance* 19: 393-430.
- Blum, J. and Hellwing, M. (1995), "The Macroeconomic Implications of Capital Adequacy Requirements for Banks", *European Economic Review* 39: 739-749.

- Boo, Sjøo (1997), *Testing for Unit Roots and Cointegration, A guide*, Mimeo, Gothenburg University, Sweden.
- Boone, P. (1994), "The Impact of Foreign Aid on Savings and Growth", Working Paper No. 1265, Center for Economic Performance, London School of Economics.
- Bowles, Paul (1987), "Foreign Aid and Domestic Savings in Less Developed Countries" Some Tests of Causality, *World Development* 16(6): 989-96.
- Boyd, J.H., Levine, R. and Smith, B.D. (2001), "The Impact of Inflation on Financial Sector Performance", *Journal of Monetary Economics* 47: 221-248.
- Brown, Gilbert T. (1973) *Korean Pricing: Policies and Economic Development in the 1960s*, Baltimore MD, Johns Hopkins University Press.
- Brownbridge, Martin and Gayi, S.K. (1999), "Progress, Constraints and Limitations of Financial Sector Reforms in The Least Developed Countries", Finance and Development Research program, Development Initiative Working Paper No. 7.
- Buffie, E.F. (1984), "Financial Repression, the New Structuralists and Stabilisation Policy in Semi Industrialised Economies", *Journal of Development Economics* 14 (April): 305-322.
- Bureau For Economic Research, Ber Handbook of Economic Trends, Various Issues, University of Stellenbosch.
- Bureau of Africa Affairs (Bulletin), Various Issues.
- Burkett, P. and Dutt, A.K. (1991), "Interest Rate Policy, Effective Demand and Growth in LDCs", *International Review of Applied Economics* 5 (2): 127-153.
- Calomiris, C.W. and Himmelberg, C.P. (1994), "Directed Credit Programs for Agriculture and Industry: Argument from Theory and Fact", Proceedings of the World Bank Annual Conference on Development Economics: 113-154.

- Capoglu, G. (1990), "The Effect of Financial Liberalisation on the Efficiency of the Turkish Financial System: 1980-88", A Paper Presented at the EEA Conference, Lisbon.
- Caprio, Gerard, Jr. (1994), *Banking on Financial Reform: A case of Sensitive Dependence on Initial Conditions*, in G. Caprio, E. Atiyas and J. Hanson (1994 eds), *Financial Reform: Theory and Experience*, New York: Cambridge University Press.
- Caprio, G., Atiyas, I., and Hanson, J.A. (1994), *Financial Reforms: Theory and Experience*, New York, Cambridge University Press.
- Caprio, G. and Summers, L. (1993), "Finance and Its Reforms: Beyond Laissez-Faire", World Bank Policy Research Working Papers, WPS 1171 (August).
- Cardenas, M. and Escobar, A. (1998), "Saving Determinants in Columbia: 1925-1994", *Journal of Development Economics* 57: 5-44.
- Central Bank of Kenya, *Monthly Economic Review*, Various issues, Nairobi.
- Central Bank of Kenya (Annual Report), Various issues, Nairobi.
- Central Bank of Kenya, *Quarterly Economic Review*, Various issues, Nairobi.
- Central Bank of Kenya, *Quarterly Statistical Bulletin*, Various issues, Nairobi.
- Central Bank of Kenya, Financial Sector Policy Note, Various Issues.
- Chandavarkar, S. (1971), "Some Aspects of Interest Rate Policies in Less Developed Countries: The Experience of Selected Asian Countries", *IMF Staff Papers* 18(1): 48-112.
- Chandavarkar, Anand G. (1973), "How Relevant is Finance For Development", *Finance and Development* 10 (3).
- Cho, Yoon (1986), "Inefficiencies from Financial Liberalisation in the Absence of Well-Functioning Equity Markets", *Journal of Money, Credit and Banking* 18 (2): 1991-99.

- Cho, Y.J. (1988), "The Effect of Financial Liberalisation on the Efficiency of Credit Allocation", *Journal of Development Economics* 29: 101-110.
- Cho, Y.J. (1989), "Finance and Development: The Korean Approach", *Oxford Review of Economic Policy* 5 (4): 88-102.
- Cho, Yoon and Khatkhate D. (1990), "Financial Liberalisation: Issues and Evidence", *Economic and Political Weekly* (May).
- Choe, C. and Moosa, I.A. (1999), "Financial System and Economic Growth: The Korean Experience", *World Development* 27 (6): 1069-1082.
- Claessens, S. and Glaessner, T. (1997), "Are Financial Sector Weakness Undermining the East-Asian Miracle", *Direction in Development, World Bank*.
- Clarke, Roland (1996), "Equilibrium Interest Rates and Financial Liberalisation in Developing Countries", *Journal of Development Studies* 32 (3)
- Cobbina, P.A. (1999), "The impact of Financial Sector in the Socio-Economic Development of post-independent Ghana" *Periscon* 2 (1).
- Collier, P. and Mayer, C. (1989), "The Assessment: Financial Liberalisation, Financial Systems and Economic Growth", *Oxford Review of Economic Policy* 5 (4): 1-12.
- Crichton, N. and De Silva, C. (1989), "Financial Development and Economic Growth: Trinidad and Tobago, 1973-1987", *Social and Economic Studies* 38 (4): 133-162.
- Davidson, P. (1986), "Finance, Funding, Saving and Investment", *Journal of Post-Keynesian Economics* 9 (Fall).
- Davidson, J., Hendry, D.F., Srba, F. and Yeo, S. (1978), "Econometric Modelling of the Aggregated Time Series Relationship Between Consumer's Expenditure and Income in the United Kingdom", *The Economic Journal* 88 (December): 661-92.
- Deaton, A. (1989), "Saving in Developing Countries: Theory and Review", proceedings of the World Bank Annual Conference on Developing Economies, Washington, DC: The World Bank: 61-96.

- De Gregorio, J. (1992), "Economic Growth in Latin America", *Journal of Development Economics* 39 (1): 58-84.
- De Gregorio, J. and Guidotti, P.E. (1995), "Financial Development and Economic Growth", *World Development* 23 (3): 433-448.
- De Kock, G. (1978), *Commission of Inquiry into the Monetary System and Monetary Policy in South Africa*, Interim Report, Government Printer, Pretoria.
- De Kock, G. (1985), *Commission of Inquiry into the Monetary System and Monetary Policy in South Africa*, Final Report, Government Printer, Pretoria.
- Delano, V. and Mirakho, A. (1990), "Strategies for Financial Reforms: Interest Rate Policies, Stabilisation and Bank Supervision in Developing Countries", *IMF Staff Papers* 37 (3): 509-536.
- DeLong, J.B., Shleifer, A., Summers, L.H., and Waldmann, R.J. (1989), "The Size and Indices of The Losses from Noise Trading", *Journal of Finance* 44 (September), pp.681-696.
- De-Mello, J. and Tybout, J. (1986), "Effects of Financial Liberalisation on Savings and Investment in Uruguay" *Economic Development and Cultural Change* 34 (3): 561-585.
- Demetriades, P., Arestis, P. and Fattouh, B. (2000), "Financial Policies and Average Productivity of capital: Evidence from Developed and Developing Economies", A Paper Presented at the Royal Economic Society's 2000 Annual Conference, University of St. Andrews.
- Demetriades, P.O. and Luintel, K.B. (2001), "Financial Restraints in the South Korean Miracle", *Journal of Development Economics* 64:459-479.
- Demetriades, P.O. and Mamuneas, T.P. (1998), "Intertemporal Output and Employment Effects of Public Infrastructure Capital: Evidence from 12 OECD Economies", Paper Presented at the European Meeting of the Econometric Society.

- Demirguc-Kunt, A. and Detragiache, E. (1998), "Financial Liberalisation and Financial Fragility", Paper presented to the *Annual World Bank Conference on Development Economics*, Washington D.C. (April).
- Demirguc-Kunt, A. and Detragiache, E. (1998), "Financial Liberalisation and Financial Fragility", IMF Working Paper, WP/98/83.
- Demirguc-Kunt, A. and Levine, R. (1996) "Stock Markets, Corporate Finance and Economic Growth: An Overview", *World Bank Economic Review* 10 (May): 223-239.
- Dewatripont, M. and Tirole, J. (1993), *The Prudential Regulation of Banks*, Cambridge, Massachusetts- The M T Press.
- Diamond, D.W. (1984), "Financial Intermediation and Delegated Monitoring", *Review of Economic Studies* 51 (July): 393-414.
- Diamond, D.W. and Dybing, P.H. (1983), "Bank Runs, Deposit Insurance and Liquidity", *Journal of Political Economy* 91: 401-419.
- Diaz-Alejandro, C. (1985), "Good-Bye Financial Repression, Hello Financial Crash", *Journal of Development Economics* 19 (1): 1-24.
- Dixon, Huw (1997), "Controversy, Finance and Development" Editorial Note, *The Economic Journal* 107 (May): 752-753.
- Dornbush, R. and Reynoso, A. (1989), "Financial Factors in Economic Development", NBR Working Paper Series No. 2889, National Bureau of Economic Research, Cambridge, Massachusetts.
- Drazen, Allan (1981), "Inflation and Capital accumulation under a finite horizon", *Journal of Monetary Economics* 8 (2): 247-260.
- Dutt, A. (1990), "Interest Rate Policy in LDCs: A Post Keynesian View", *Journal of Post Keynesian Economics* 13 (2): 210-232.

- Dutta, D. and Ahmed, N. (1997), "An Aggregate Import Demand Function for Bangladesh: A Cointegration Approach" Working Papers in Economics, University of Sydney.
- Eatwell, John (1997), "International Financial Liberalisation: The Impact on World Development", ODS Discussion Paper 12, UNDP, New York.
- Edward, S. (1996), "Why are Latin American's Saving Rates So Low? An International Comparative Analysis", *Journal of Development Economics* 51: 5-44.
- Engle, R.F. and Granger, C.J. (1987), "Cointegration and Error-correction - Representation, Estimation and Testing", *Econometrica* 55 (2): 251-78.
- English, W.B. (1999), "Inflation and Financial Sector Size", *Journal of Monetary Economics* 44: 379-400.
- Falkena, H.B. (1991), *Financial Policy in South Africa*, Southern Book Publishers, Halfway House.
- Falkena, H.B. (1993), *Fundamentals of The South African Financial System*, Southern Book Publishers, Halfway House.
- Falkena, H.B., Fourie, L.J. and Kok, W.J. (1995), *The South African Financial System*, Half Way House, Southern Book Publishers.
- Falkena, H.B., Bamber, R., Llewellyn, D. and Store, T. (2001), *Financial Regulation in South Africa*, Published by SA Financial Sector Forum, Second Edition (March).
- Federer, J.P. (1993), "The Impact of Uncertainty on Aggregate Investment Spending", *Journal of Money, Credit and Banking* 25 (February): 30-35.
- Feldstein, M. (1980), "International Differences in Social Security and Savings", *Journal of Public Economics* 14 (2): 225-44.
- Fanelli, J.M. and Medhora, R. (1998), "Financial Reforms in Developing Countries", International Development Research centre (IDRC), Canada.

- Finance and Enterprise Report (2000), "Report on Costs and Interest Rates in the Small Loan Sector".
- Faure, A.P. Elements of South African Financial Markets – In SA Financial Sector Forum.
- Fourie, L.J., Falkena, H.B. and Kok, W.J. (1996), *Fundamentals of the Southern Africa Financial System*, Students Edition, International Thompson Publishers, Halfway House, Gauteng.
- Friedman, M. (1968), "The Role of Monetary Policy", *American Economic Review* 58 (March): 1-17.
- Fry, M.J. (1973), "Manipulating Demand for Money, in Michael, Parkin (ed)", *Essays in Modern Economics*, Long man.
- Fry, M.J. (1977), "Financial Instruments and Markets", *In Conferencia Internacional Sobre Economia Portuguesa*, 11 a 13 Outubro de 1976ed, German Marshall Fund of the United States and Fundacao Calouste Gulbenkian: 189-208.
- Fry, M.J. (1978), "Money and Capital or Financial Deepening in Economic Development", *Journal of Money, Credit and Banking* 10: 464-75.
- Fry, M.J. (1979), "The Cost of Financial Repression in Turkey", *Savings and Development* 3 (2): 127-135.
- Fry, M.J. (1980), "Savings, Investment, Growth and the Cost of Financial Repression" *World Development* 8 (4): 317-27.
- Fry, M.J. (1981a), "Interest Rates in Asia: An Examination of Interest Rate Policies in Burma, India, Indonesia, Korea, Malaysia, Nepal, Pakistan, the Philippines, Sri-Lanka, Taiwan and Thailand", *IMF*, Washington, D.C.(June).
- Fry, M.J. (1981b), "Inflation and Economic Growth in Pacific Basin Developing Countries", *Federal Reserve Bank of San Francisco Economic Review* (Fall): 8-18.

- Fry, M.J. (1982), "Models of Financial Repressed Developing Economies" *World Development* 10 (9): 731-750.
- Fry, M.J. (1986), "Financial Sector Liberalisation Under Oligopolistic Conditions and a Bank Holding Company Structure", *Savings and Development* 10 (2).
- Fry, M.J. (1988), *Money, Interest and Banking in Economic Development*, John Hopkins University Press, Baltimore, London.
- Fry, M.J. (1991), "Domestic Resources Mobilisation in Developing Asia: Four Policy Issues", *Asian Development Review* 9: 15-39.
- Fry, M.J. (1995), *Money, Interest and Banking in Economic Development*, 2nd edition, Baltimore: Johns Hopkins University Press.
- Fry, M.J., Goodhart, C.A.E. and Almeida, A. (1996), *Central Banking in Developing Countries: Objectives, Activities and Independence*, London: Routledge.
- Fry, M.J. (1997), "In Favour of Financial Liberalisation", *Economic Journal* 107 (May): 754-767.
- Fry, M.J. (1998), "Savings, Investment, Growth and Financial Distortion in Pacific Asia and other Developing Areas" *International Economic Journal* 12 (Spring).
- Fry, M.J. and Mason, A. (1982), "The Variable Rate of Growth Effect in the Life-cycle Saving Model: Children, Capital Inflows, Interest Rate and Growth in a New Specification of the Life-Cycle Model Applied to Seven Asian developing Countries", *Economic Enquiry* 20 (July): 426-42.
- Galbis, Vincent (1976), "Structuralism and Financial Liberalisation", *Finance and Development* 13 (2).
- Galbis, Vincent (1977), "Financial Intermediation and Economic Growth in Less-Developed Countries: A Theoretical Approach", *Journal of Development Studies* 13 (2): 58-72.

- Galbis, Vincent (1979), "Money, Investment and Growth in Latin America", *Economic Development and Cultural Change* 27 (3): 423-443.
- Galbis, Vincent (1982), "Analytical Aspects of Interest Rate Policies in Less Developed Countries", *Savings and Development* 4 (2).
- Gelb, A. (1989), "Financial Policy, Growth and Efficiency", *World Bank*, Policy Planning and Research Working Paper, WPS 202.
- Gelos, Gaston (1997) "How did Financial Liberalisation in Mexico Affect Investment? Evidence from the Manufacturing Sector", Department of Economics, Yale University.
- Gennotte, G. and Pyle, D. (1991), "Capital Controls and Bank Risk", *Journal of Banking and Finance* 15: 805-824.
- Geweke, J. (1981), "A Comparison of Tests of the Independence of Two Covariance-Stationary Time Series", *Journal of the American Statistical Association* 76: 363-373.
- Geweke, J., Masee, R. and Dent, W. (1983), "Comparing Alternative Tests of Causality in Temporal Systems: Analytical Results and Experimental Evidence", *Journal of Econometrics* 21: 161-194.
- Gibson, H. and Tsakalotos, E. (1994), "The Scope and Limits of Financial Liberalisation in Developing Countries: A Critical Survey", *The Journal of Development Studies* 30 (3): 578-628.
- Giovannini, A. (1983), "The Interest rate Elasticity of Savings in Developing Countries: Existing Evidence", *World Development* 11 (7): 601-607.
- Giovannini, A. (1985), "Savings and Real Interest Rate in LDCs", *Journal of Development Economics* 18 (2-3): 197-217.
- Giovannini, A. and De Melo, M. (1993), "Government Revenue from Financial Repression", *American Economic Review* 83: 953-963.

- Goldsmith, Raymond (1969), *Financial Structure and Development*, New Haven, CT: Yale University Press.
- Grabel, I. (1995), "Speculation-led Economic Development, A Post Keynesian Interpretation of Financial Liberalisation Programs", *International Review of Applied Economics* 9 (2).
- Graff, Michael (1999), "Financial Development and Economic Growth – A new Empirical Analysis". *Dresden discussion paper series in Economics*, Nr. 5/99 (Technische Universitat Dresden).
- Granger, C.W. (1969), "Investigating Causal Relations by Econometric Models and Cross-Spectral Methods", *Econometrica* 37: 424-438.
- Granger, C.W. (1981), "Some properties of time series data and their use in Econometric model specification", *Journal of Econometrics* 16: 121-30.
- Granger, C.W and Newbold, P. (1974) "Spurious Regression in Econometrics" *Journal of Econometrics* 2 (July): 111-120.
- Granger, C.W. (1986) "Development in the Study of Cointegrated Economic Variables", *Oxford Bulletin of Economics and Statistics* 48 (3): 213-228.
- Greenspan, Alan (1999), "Lessons from Global Crises, Before the World Bank and the IMF, Program of Seminars, Washington DC (September).
- Greenwood, J. and Jovanovic, B. (1990) "Financial Development, Growth and the Distribution of Income", *Journal of Political Economy* 98, (October): 1076-1107.
- Greenwood, J. and Smith, B. (1997), "Financial Markets in Development and the development of Financial Markets" *Journal of Economic Dynamics and Control* 21 (January): 145-82.
- Guilkey, D.K and Salemi, M. (1982), "Small Sample Properties of Three Tests for Granger-Causal Ordering in a Bivariate Stochastic System", *Review of Economics and Statistics* 64: 668-681.

- Gupta, K.L. (1970), "Personal Savings in Developing Nations: Further Evidence", *The Economic Record* 46 (114).
- Gupta, K.L. (1984a), *Finance and Economic Growth in Developing Countries*, Croom Helm Ltd, London.
- Gupta, K.L. (1984b), "Financial Intermediation, Interest Rate and the Structure of Savings: Evidence from Asia", *Journal of Economic Development* 9 (July): 7-24.
- Gupta, K.L. (1987), "Aggregate Savings, Financial Intermediation and Interest Rates", *Review of Economics and Statistics* (May).
- Gupta, K.L. and Lensink, R. (1996), *Financial Liberalisation and Investment*, Routledge Studies in Development Economics, Routledge, New York.
- Gurley, J. and Shaw, E. (1960), *Money in a Theory of Finance*, Washington DC: Brookings Institution.
- Gurley, J. and Shaw, E. (1967), "Financial Structure and Economic Development", *Economic Development and Cultural Change* 15 (3).
- Hadjimichael, M., Ghuru, D., Muhleisen, M., Nord, R. and Ucer, E. (1995), "Sub-Saharan Africa: Growth, Savings and Investment, 1986-93, IMF Occasional Paper No. 118.
- Hadjimichael, Michael T. and Galy, Michel (1997), "The CFA Franc Zone and EMU", IMF Working Paper 97/156 (November).
- Hall, R.E. (1978), "Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence", *Journal of Political Economy* 86: 971-987.
- Hall, S. (1986), "An Application of Engle and Granger Two - Step Estimation Procedure to UK Aggregate Wage Data" *Oxford Bulletin of Statistics* 48 (3): 229-39.
- Hancock, D., Laing, A.J. and Wilcox, J. (1995), "Bank Capital Shocks: Dynamic Effects on Securities, Loans and Capital", *Journal of Banking and Finance* 19: 661-677.

- Hanson, J. and Neal, G. (1986), "Interest Rate Policies in Selected Developing Countries, 1970-82, Industry and Finance Series, World Bank 14.
- Harris, J.R., Schiantarelli, F. and Siregar, M.G. (1992), "How Financial Liberalisation in Indonesia Affected Firms' Capital Structure and Investment Decisions", World Bank Working Paper No.997, Washington D.C.
- Harvey, C., Bekaert, G. and Garcia, M. (1995), "The Role of Capital Markets in Economic Growth", *Catalyst Monograph Series*, Catalyst Institute.
- Hassanali, Mehran et al (1998), "Financial Sector Development in sub-Saharan African Countries", IMF Occasional Papers Series, No. 169, Washington DC.
- Hellmann, T., Murdock, K. and Stiglitz J. (1994) (a), "Deposit Mobilisation Under Financial Restraint", Paper Presented at the Workshop on Financial Development and Economic Growth, University of Groningen, 7-9 December (1994).
- Hellmann, T., Murdock, K. and Stiglitz, J. (1994 b), "Addressing Moral Hazard in Banking: Deposit Rate Controls Versus Capital Requirements", Mimeo, Stanford University.
- Hellmann, T., Murdock, K. and Stiglitz, J. (1996 a), "Financial Restraints: Toward a New Paradigm", in M. Aoki, M. Okuno-Fujiwara and H. Kim (eds), *The Role of Government in East Asia Economic Development: Comparative Institutional Analysis*, Oxford University Press.
- Hellmann, T., Murdock, K. and Stiglitz J. (1996 b), "Deposit Mobilisation through Financial Restraints", in N. Hermes and R. Lensink (eds), *Financial Development and Economic Growth*, Routledge, London.
- Hellmann, T., Murdock, K. and Stiglitz, J. (1997 a), "Financial Restraint: Toward a New Paradigm", in Aoki, Masahiko, Hyung-Ki kim and Okuno-Fujiwara, Masahiro eds, *The Role of Government in East Asian Economic Development*, Oxford University Press.

- Hellmann, T., Murdock, K. and Stiglitz, J. (1997 b), "Financial Restraint and the Market Enhancing View", A paper presented at the International Economics Association Conference on the Institutional Foundation of Economic Development in East Asia.
- Hendry, D.F. (1994), "Econometrics: Alchemy or Science", *Economica* 47: 387-406.
- Hendry, D.F., Pagan, A. R. and Sargan, I.D. (1984), "Dynamic Specification", Chapter 18 in Griliches, Z. and Intriligator, M.D. (eds), *Handbook of Econometrics* 2 (North-Holland, Amsterdam): 1023-1100.
- Hendry, D.F. and Doornik, J.A. (1994), "Modelling Linear Dynamic Econometric Systems", *Scottish Journal of Political Economy* 41:1-33.
- Hermes, N. (1994), "Financial Development and Economic Growth: A Survey of the Literature", *International Journal of Development Banking* 12 (1): 3-22.
- Honohan, P. and Stiglitz, J.E. (1999), "Robust Financial Restraints", in Caprio, G. et al (2001), *Financial Liberalisation: How Far, How Fast?* World Bank: Cambridge University Press.
- Horioka, C. (1991), "The Determinants of Japan's Savings Rate: The Impact of the Age Structure of the Population and Other Factors", *The Economic Studies Quarterly* 42 (3): 237-253.
- Hoshi, T., Kashyap, A. and Scharfstein, D. (1990), "The Role of Banks in Reducing the Cost of Financial Distress in Japan", *Journal of Financial Economics* 27:67-88.
- Howard, Michael (2001), "Financial Liberalisation in Jamaica", *Savings and Development* 25(4): 457-472.
- Hsiao, C. (1979), "Autoregressive Modelling of Canadian Money and Income Data", *Journal of American Statistical Associations* 74: 553-560.
- Hsiao, C. (1981), "Autoregressive Modelling and Money-Income Causality Detection", *Journal of Monetary Economics* 7: 85-107.

- Hussein, Khaled (1999), "Finance and Growth in Egypt", A Research Discussion Paper, Department of Economics, University of Canterbury.
- Hyuha, M. (1982), "Financial Intermediation and Economic Growth in Developing Countries", *Journal of Economic Reflection* 2 (1): 32-43.
- Hyuha, M. (1984), "Savings and Investment Rates, Foreign Capital Inflows, Financial Intermediation and Growth in Uganda: A Simultaneous Equation Model", University of Dar-es-salaam, Economic Research Bureau (ERB), Paper 84.
- IDS Bulletin (1999), "East Asia: What Happened to the Development Miracle? The Global Implications, IDS 30 (1).
- Ikhide, Sylvanus (1992), "Financial Deepening, Credit Availability and the Efficiency of Investment: Evidence of Selected African Countries", Development Research Paper Series, Research Paper No 2.
- International monetary Fund (Annual Report), Various Issues.
- International Financial Statistics Yearbook, IMF, Various Series.
- International Monetary Fund (2001), "Public information Notice", No. 01/44/ (May).
- Jao, Y.C. (1985), "Financial Deepening and Economic Growth: Theory, Evidence and Policy", *Greek Economic Review* 7 (3): 187-225.
- Jappelli, T. and Pagano, M. (1989), "Consumption and Capital Market Imperfections: An International Comparison", *American Economic Review* 79: 1088-1105.
- Jappelli, T. and Pagano, M. (1994), "Savings, Growth and Liquidity Constraints", *Quarterly Journal of Economics* 109: 83-109.
- Jaramillo, F., Schiantarelli, F. and Weiss, A. (1992), "The Effect of Financial Liberalisation on the Allocation of Credit: Panel Data Evidence for Ecuador", Policy Research Working Papers, WPS 1092, The World Bank.
- Jensen, M.C. and Murphy, K.J. (1990), "Performance Pay to Top Management Incentives", *Journal of Political Economy* 98 (April): 225-64.

Johannesburg Stock Exchange (JSE) Bulletin, Various Issues.

Johansen, S. (1988), "Statistical Analysis of Cointegration vectors", *Journal of Economic Dynamics and Control* 12: 231-54.

Johansen, S. (1991), "Estimation and Hypothesis Testing of Cointegration vectors in Gaussian vector Autoregressive Models", *Econometrica* 59:1551-80.

Johansen, S. and Juselius, K. (1990), "Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money", *Oxford Bulletin of Economics and Statistics* 52: 169-210.

Johnston, Barry (1994), "The Speed of Financial Sector Reforms: Risks and Strategies", Paper prescribed at seminar sponsored by USAID/ Brookings/KPMG/Peat Marwick (Washington, D.C.), October 3-4.

Joulfaian, D. and Mookerjee, R. (1990), "The Intertemporal Relationship Between State and Local Government Revenues and Expenditures: Evidence from OECD Countries" *Public Finance* 45:109-117.

Jung, Woo (1986), "Financial Development and Economic Growth: International Evidence", *Economic Development and Cultural Change* 34 (January): 333-46.

Kamewe, Hugues, T. and Ian, A Radcliffe (1999), "Reviving Postal Savings Banks in East-Africa", World Savings Bank Institute - Mimeo Prepared for UNDP, Brussels.

Kang, K. (1994), "Why Did Koreans Save So Little and Why Do they Now Save So Much" *International Economic Journal* 8(4): 99-111.

Kapur, B.K. (1976), "Alternative Stabilisation Policies for Less-Developed Economies", *Journal of Political Economy*, 84 (4): 777-95.

Kapur, B.K. (1983), "Optimal financial and Foreign Exchange Liberalisation of Less Developed Economies", *Quarterly Journal of Economics* 98 (1): 41-46.

- Kar, Muhsin and Pentecost, Eric J. (2001), "A System Test of Mckinnon's Complementarity Hypothesis With An Application to Turkey", Department of Economics, Loughborough University.
- Kariuki, P.W. (1995), "The Impact of Interest Rate Liberalisation on Financial Savings - the case of Kenya" *African Review of Money, Finance and Banking* 95 (1-2): 5-19.
- Kar, Muhsin and Pentecost, E.J. (2000), "Financial Development and Economic Growth in Turkey: Further Evidence on the Causality Issue", *Economic Research Paper* No.00/27, Department of Economics, University of Loughborough University.
- Keeley, M.C. and Furlong, F.T. (1990), "A Re-examination of Mean-Variance Analysis of Bank Capital Regulation", *Journal of Banking and Finance* 14: 69-84.
- Kelly, M.V. (1993), *Financial Institutions in South Africa: Financial, Investment and Risk Management*, Juta, Cape-Town.
- Kendall, Patrick (2000), "Interest Rates, Savings and Economic Growth in Guyana", *Caribbean Development Bank Staff Papers* (August).
- Keynes, J.M. (1936), *The General Theory of Employment, Interest and Money*, London, Harcourt Brace.
- Khan, A., Hasan, L. and Malik, A. (1994), "Determinants of National Saving Rate in Pakistan", *Economia Internazionale* 47 (November): 365-82.
- Khan, Ashfaq and Hasan, L. (1998), "Financial Liberalisation, Savings and Economic Development in Pakistan", *Economic Development and Cultural Change* 46 (3): 581-595.
- Khatkhate, Deena (1972), "Analytic basis of the Working of Monetary Policy in Less Developed Countries", *IMF staff Paper* 19 (3): 533-557.

- Khatkhate, Deena (1982), "Anatomy of Financial Retardation in a Less Developed Country; The Case of Sri Lanka, 1951-1976", *World Development* 10 (9): 829-840.
- Khatkhate, Deena (1988), "Assessing the Impact of Interest Rates in Less Developed Countries", *World Development* 16 (5): 577-588.
- Khatkhate, Deena (1996), "Financial Liberalisation: A Revisionist View", *The Indian Journal of Economics* 77 (304): 127-143.
- Kim, D. and Santomero, A.M. (1988), "Risk in Banking and Capital Regulations", *The Journal of Finance* 43 (5): 1219-1233.
- King, R.G. and Levine, R. (1993a), "Finance and Growth: Schumpeter Might Be Wright", *Quarterly Journal of Economics* 108 (3): 713-37.
- King, R.G. and Levine, R. (1993b), "Finance, Entrepreneurship and Growth", *Journal of Monetary Economics* 32 (3): 513-42.
- Kogar, Cigdem iZGi (1995), "Cointegration Test for Money Demand: The Case for Turkey and Israel", The Central Bank of the Republic of Turkey, Discussion Paper No. 9514 (May).
- Kok, P. and Pietersen J. (2000), "Financial Services", Human Sciences Research Council, Pretoria.
- Koskela, E. and Viren, M. (1994), "Taxation and Household Saving in Open Economies: Evidence from the Nordic Countries", *Scandinavian Journal of Economics* 96: 425-441.
- Lahiri, A. (1989), "Dynamics of Asian Savings: The Role of Growth and Age Structure", *IMF Staff Papers* 36: 228-261.
- Lanyi, A. and Saracoglu, R. (1983), "Interest Rate Policies in Developing Countries", IMF Occasional Paper 22

- Laumas, P.S. (1962), "Schumpeter's Theory of Economic Development and Underdeveloped Countries", *Quarterly Journal of Economics* 305 (November): 653-59.
- Laumas, P.S. (1990), "Monetisation, Financial Liberalisation and Economic Development", *Economic Development and Cultural Change* 38 (January): 377-390.
- Lee, Kongkook (2001) "Note on Study of the Changes of Financial System" Ref. 00.12- Department of Economics, University of Massachusetts.
- Leite, Sergio and Makonnen, D. (1984), "Savings and Interest Rates in the BCEAO Countries: An Empirical Analysis", *IMF - DM/84/43, Washington, D.C.*
- Leite, Sergio and Makonnen, D. (1986), "Savings and Interest Rates in the BCEAO Countries: An Empirical Analysis", *Savings and Development* 10 (3): 219-131.
- Levine, R. (1990), "Financial Structure and economic growth", International Finance Discussion Paper N0.381, Washington, D.C.: Board of Governors of the Federal Reserve System.
- Levine, R. (1991), "Stock Markets, Growth and Tax Policy", *Journal of Finance* 46 (September): 1445-65.
- Levine, R. (1992) "Financial Structure and Economic Development", World Bank Working Paper, WPS No. 849 (February), Washington DC.
- Levine, R. (1996), "Stock Markets - A Spur to Economic Growth", *Finance and Development* 33 (1).
- Levine, R. (1997), "Financial Development and Economic Growth", *Journal of Economic Literature* 35 (2): 688-727.
- Levine, R. (2000), "Bank-based or Market-based Financial Systems: Which is Better?" University of Minnesota, Carlson School of Management, *Working Paper* 0005.

- Levine, R. and Zervos, S. (1996), "Stock Market Development and Long Run Growth" *World Bank Economic Review* 10 (2).
- Levine, R. and Zervos, S. (1998), "Stock Markets, Banks and Economic Growth" *American Economic Review* 98 (June): 537-58.
- Lewis, W.A. (1955), *Theory of Economic Growth*, London: George Allen & Unwin.
- Lopez-Murphy, R. and Navajas, F. (1998), "Domestic Savings, Public Savings and Expenditures on Consumer Durable Goods in Argentina", *Journal of Development Economics* 57 (1): 97-116.
- Lowe, Philip (1992), "The Impact of Financial Intermediaries on Resource Allocation and Economic Growth", Research Discussion Paper No. 9213, *Reserve Bank of Australia*, Sydney (December).
- Luckett, D.G. (1984), *Money and Banking*, Mc.Graw-Hill, Singapore.
- Luintel, K.B. and Khan, M. (1999), "A Quantitative Reassessment of the Finance-Growth Nexus: Evidence from a Multivariate VAR", *Journal of Development Economics* 60: 381-405.
- Lynde, C. and Richmond, J. (1993), "Public Capital and Long-run Costs in UK manufacturing", *The Economic Journal* 103: 880-893.
- Mahambare, Vidya and Balasubramanyam, V.N. (2000), "Liberalisation and Savings in Developing Countries: The Case of India", Department of Economics Working Papers, Lancaster University, Ref. EC 4/00.
- Maje, Evelyn (1992), "Monetisation, Financial Development and the Demand for Money-The case of Tanzania", Un-published PhD thesis, University of Lund.
- Mallik, S.K. (1993), "On the Causation between Exports and Economic Growth: Some Further Evidence with Reference to India, (Mimeo), Quantitative Analysis Unit, Institute for Social and Economic Change, Bangalore.

- Mallik, K. (1996), "Causality Between Exports and Economic Growth in India: Evidence from Cointegration Based Error Correction Models", *The Indian Journal of Economics* 76 (302): 307-320.
- Masson, P.R. (1995), *France: Financial and Real Sector Issues* (Washington International Monetary Fund).
- Mathieson, D.J. (1979), "Financial Reforms and Capital Flows in a Developing Economy", *IMF Staff Papers* 26(3): 450-489.
- Mathieson, D.J. (1980), "Financial Reforms and Stabilisation Policy in a Developing Economy", *Journal of Development Economics* 7 (3): 359-95.
- Mavrotas, G. and Kelly, R. (1999), "Financial Sector Development and Savings Mobilisation: An Assessment", *Finance and Development Research Program, DFID, UK*.
- Mavrotas, G. and Kelly, R. (2001), "Savings Mobilisation and Financial Sector Development: The Nexus", *Savings and Development* 25 (1): 33-66.
- McCarthy, C.L. (1983), *Monetary Economics: A South African Perspective*, Haum Educational Publishers, Pretoria.
- McKinnon, R.I. (1973), *Money and Capital in Economic Development*, The Brookings Institution, Washington D.C.
- McKinnon, R.I. (1982), "The Order of Economic Liberalisation – Lessons from Chile and Argentina", *Proceedings, Carnegie-Rochester Conference Series on Public Policy*, No.17 (Autumn): 159-186.
- McKinnon, R.I. (1988), "Financial Liberalisation and Economic Development: A Re-Assessment of Interest Rate Policies in Asia and Latin America", International Centre for Economic Growth, Occasional Papers, No.6.

- McKinnon, R.I. (1989), "Financial Liberalisation and Economic Development - A Reassessment of Interest Rate Policies in Asia and Latin America", *Oxford Review of Economic Policy* 5 (Winter): 29-54.
- McKinnon, R.I. (1991), *The Order of Economic Liberalisation*, New York: John Hopkins University Press.
- McKinnon, R.I. (1993), "The Order of Economic Liberalisation, Financial Control in Transition to a Market Economy", 2nd edition, *Baltimore*: Johns Hopkins University Press.
- McKinnon, R. and Pill, H. (1997), "Credible Economic Liberalisation and Over-borrowing", *American Economic Review* 87: 189-193.
- McKinnon, R.I. (1999), "Beware of the 'Over-borrowing Syndrome'. In: Grunberge, Isabelle, ed. 1998, *Perspectives on Financial Liberalisation*, ODS Discussion Papers, UNDP, New York.
- Mduma, J.K. (1999), "The Impact of Interest Rate Policies on Financial Savings in Tanzania: A Dynamic Specification Model" Unpublished M.A (Economics) Dissertation, University of Dar-es-salaam.
- Mehran, Hassanali and Laurens, Bernard (1997), "Interest Rates: An Approach to Liberalisation", *Finance and Development* (June).
- Mikesell, R.F. and Zinser, J.E. (1973), "The Nature of The Savings Function in Developing Countries: A Survey of the Theoretical and Empirical Literature", *Journal of Economic Literature* 11 (1): 1-26.
- Ministry of Finance –Tanzania (2001), "Speech by the Minister for Finance on the Estimates of Government Revenue and Expenditure for the Financial Year 2001/02.
- Mishkin, Frederic (2000), "Inflation Targeting in Emerging Market Countries", National Bureau of Economic Research, Working Paper Series No. 7618, A Paper prepared for AEA Papers and Proceedings, Boston Mass (May).

- Modeste, Nelson (1993), "An Empirical Test of the McKinnon Model of Unrepression and Economic Growth: The Experience of some Caribbean Countries, *Social and Economic Studies* 42 (2-3): 81-94.
- Molho, Lazarus (1986), "Interest Rate, Savings and Investment in Developing Countries: A Re-Examination of the McKinnon-Shaw Hypothesis", *IMF Staff Papers* 33 (1): 90-111.
- Montiel, P.J. (1995) "Financial Policies and Economic Growth, Theory, Evidence and Country Specific Experience from sub-Saharan Africa" *Journal of African Economies (AERC Supplement)* 5 (3): 65-98.
- Moriera, Emmanuel, P. (1999), "Financial Liberalisation and the Sequencing of Reforms: African Countries Experiences", Ph.D. Dissertation, University of Nancy-France.
- Morisset, Jacques (1993), "Does Financial Liberalisation Really Improve Private Investment in Developing Countries?" *Journal of Development Economics* 40 (February): 133-150.
- Mosley, Paul (1999), "Micro-Macro Linkages in Financial Markets: The Impact of Financial Liberalisation on Access to Rural Credit in Four African Countries", Finance and Development Research program, Development Initiative, Working Paper No. 4.
- Muellbauer, J. and Murphy, A. (1990), "Is the U.K Balance of payments Sustainable?" *Economic Policy* 11: 345-83.
- Murinde, V. and Eng, F.S.H. (1994), "Financial Development and Economic Growth in Singapore: Demand-Following Or Supply-leading"? *Applied Financial Economics* 4 (6): 391-404.
- Mushi, Fatuma (1998), "The Impact of Financial Development on Tanzania Economic Growth", M.A. Dissertation University of Dar-es-salaam.

- Mwega, F.M., S.M. Ngola and N. Mwangi (1990), "Real Interest Rate and the Mobilisation of Private Savings in Africa, A case of the Kenya", *AERC - Research Paper* No. II.
- Mwega, F.M. (1997), "Saving in Sub-Saharan Africa: A comparative Analysis", *Journal of African Economies* 6(3), 199-228.
- Nadiri, M. and Mamuneas, T.P. (1994), "The Effect of Public Infrastructure and R & D Capital on the Cost Structure and Performance of US Manufacturing Industries", *The Review of Economic and Statistics* 76: 22-37.
- Ndele, S.M. (1991), "The Effects of Non-Bank Financial Intermediaries on Demand For Money in Kenya", *AERC Research paper* No.5.
- Ndulu, B. and Mukwanason, Hyuha (1989), "Inflation and Economic Recovery in Tanzania-Some Empirical Evidence", *UCHUMI* 2 (1).
- Ndungu, S.N. (1999), "Monetary and Exchange Rate Policy in Kenya", *AERC Research Paper* No. 94.
- Nel, H.F. (2000), "Minimum Reserve Requirements", South Africa Reserve Bank (Articles).
- New Africa (2000), *Kenya Finance*, GG Ltd.
- Ngugi, R.W. and Kabubo, J.W. (1998), "Financial Sector Reforms and Interest rate Liberalisation- The Kenya Experience" *AERC Research Paper* No: 72.
- Nissanke, M. (1990), "Mobilising Domestic Resources for African Development and Diversification; Structural Impediments in the Formal Financial System", mimeo, Oxford (June).
- Nissanke, M. and Aryeetey, E. (1995), "Financial Integration and Development in sub-Saharan Africa", Report for WB, Washington DC, *World Bank*.

- Noland, Marcus (1996), "Financial Sector Liberalisation in Africa in the Framework of Economic Reform Programmes", Institute of International Economics, *APEC Working Paper* 14.
- Nyagetera, B.M. (1997), "Financial Repression in Tanzania, its Impact on Savings, Investment, Credit and Growth" Unpublished PhD thesis, University of Dar-es-salaam.
- Obstfeld, Maurice (1994), "Risk-Taking, Global Diversification and Growth", *American Economic Review* 84 (5): 1310-1329.
- Obstfeld, M. and Rogoff, K. (1995), "The Mirage of Fixed Exchange Rates", *Journal of Economic Perspectives* 9 (4): 73-96.
- Obstfeld, Maurice and Giovanni, Peri (1998), "Regional Non-Adjustment and Fiscal Policy".
- Ocampo, J. (1985), "A Horro e Inversion en Colombia", Cited in Cardenas et al (1998), op. cit.
- Ocampo, J., Londerio, J.L. and Villar, L. (1985), "A horro e Inversion en Colombia", *Coyuntura Economica*, June.
- Odhambo, N.M. (1999), "Financial Liberalisation in Kenya: It's Impact on Savings, Investment Efficiency and Economic Development" Unpublished M.A (Economics) Dissertation, University of Dar-es-salaam.
- Ogaki, M., Ostry, J. and Reinhart, C.M. (1996), "Savings Behaviour in Low and Middle Income Developing Countries: A Comparison", *IMF Staff Papers* 43 (1): 38-71.
- Omoroyi, S.E. (1991), "Financial Sector in Africa: Overview and Reforms in Economic Adjustment Programs", *Economic and Financial Review* (Central Bank of Nigeria) 29 (2).
- Oshikoya, T.W. (1992), "Interest Rate Liberalisation, Savings, Investment and Growth-The case of Kenya" *Savings and Development* 16: 305-320.

- Ostry, J. and Reinhart, C.M. (1992), "Private Savings and Terms of Trade Shocks: Evidence from Developing Countries", *IMF Staff Papers* 39 (September): 495-517.
- Patel, Mayank (1998), "Kenya's Banking Industry Success", KPMG Peat Marwick (Kenya).
- Patrick, H.T. (1966), "Financial Development and Economic Growth in Underdeveloped Countries", *Economic Development and Cultural Change* 14 (1): 174-189.
- Philips, P.C. (1987), "Time Series Regression with Unit Root", *Econometrica* 55 (March): 277-301.
- Pierce, D. and Haugh, L. (1977), "Causality in temporal System: Characterisation and a Survey", *Journal of Econometrics* 5: 265-293.
- Pindyck, R.S and Robin, F. (1991), *Economic Models and Economic Forecasts*, 3rd edition.
- Political and Economic Encyclopidia of Africa – Guy Arnold (1993), Long man Current Affair.
- Pollin, Robert (1995), "Financial Structures and Egalitarian Economic Policy", *New Left Review* (214).
- Popiel, P.A. (1990), "Developing Financial Markets in sub-Sdaharan Africa", EDI Working Paper, World Bank.
- Popiel, P.A. (1994), "Financial Systems in sub-Saharan Africa", A comparative Study. *World Bank discussion Papers - African Technical Department Series*.
- Rajan, Raghuram and Zingales, L. (1998), "Financial Dependence and Growth", *American Economic Review* 88 (3).
- Ram, Rati (1988), "Additional Evidence on Causality between Government Revenue and Government Expenditure" *Southern Economic Journal* 58:763-769.

- Rees, J. (1996), "Financial Restraints Leads to Economic Growth", *Stanford Graduate School of Business*, Faculty News Releases- Academic Community Services.
- Reichel, R. (1991), "The Macroeconomic Impact of Negative Interest Rates in Nigeria: Some Econometric Evidence", *Savings and Development*, 15: 273-282.
- Republic of South Africa, Annual Budget Speech, Various series.
- Reynoso, A. (1989), "Essays on the Macroeconomic Effects of Monetary Reform, Price Controls and Financial Repression", MIT Dissertation.
- Ringo, F. (1997), National Payment Systems Modernisation Project – Report on Appraisal of Government Payment Systems, Dar-es-salaam (September).
- Robinson, J. (1952), *The Generalisation of The General Theory in: The Rate of Interest and Other Essays*, McMillian, London.
- Rodrik, Dani (1998), "Who Needs Capital-Account Convertibility?" In S. Fischer et al., *should the IMF Pursue Capital Account Convertibility?* Princeton University, Department of Economics, Essays in International Finance 207 (May): 55-65.
- Rossi, Nicola (1988), "Government Spending, the Real Interest Rate and the Behavior of Liquidity Constrained Consumers in Developing Countries", *IMF Staff Papers* 34 (March): 204-40.
- Roubini, N. and Sala-i-Martin, X. (1992), "Financial Repression and Economic Growth", *Journal of Development Economics* 39: 5-30.
- Rousseau, Peter, L. and Wachtel, Paul (2000), "Inflation, Financial Development and Growth", *Essays in Honour of Ryuzo Sato* Edited by T. Negishi, R. Ramachandran and K. Mino. Kluwer, 2001.
- Roychoudhry, U.D. (1977), "Industrial Breakdown of Capital Stock in India", *Journal of Income and Wealth* 1 (April): 144-63.

- Saint-Paul, Gilles (1992), "Technological Dualism, Incomplete Financial Markets and Economic Development", *Journal of International Trade and Economic Development*, 1 (June): 13-26.
- Sargan, J.D. (1964), "Wages and Prices in the United Kingdom: A Study of Econometric Methodology", in P.E. Hart, G. Mills and J. K. Whitaker, *Econometric Analysis for National Economic Planning*, Butterworths, London.
- Sargan, J.D. and Bhargava, A. (1983), "Testing Residuals from Least Squares Regression for Being generated by the Gaussian Random Walk", *Econometrica* 51 (1): 153-167.
- Schmidt-Hebbel, K. (1987), "Foreign Shocks and Macroeconomic Adjustment in Small Open Economies", Cited in Schmidt-Hebbel et al (1992), op. cit.
- Schmidt-Hebbel, K, Webb, S.B. and Corsetti, G. (1992), "Household Saving in Developing Countries: First Cross-Country Evidence", *World Bank Economic Review* 6: 529-547.
- Schmidt-Hebbel, K. (1995), "Columbia's Pension Reform: Fiscal and Macroeconomic Effects", *Discussion Paper* No. 314, Washington, DC (World Bank).
- Scharfstein, David (1988), "The Disciplinary Role of Takeovers", *Review of Economic Studies* 55 (2).
- Schmidt-Hebbel, K., Servén L. and Solimano, A. (1996), "Saving and Investment: Paradigms, Puzzles, Policies", *The World Bank Research Observer* 11 (1): 87-117.
- Schiantarelli, F., Atiyas, I., Caprio, G., Harris, J. and Weiss, A. (1994), "Credit Where It Is Due? A Review of the Macro and Micro Evidence on the Real Effects of Financial Reform", In G. Caprio, I. Atiyas and J. Hanson (eds), *Financial Reform: Theory and Experience*. New York: Cambridge University Press.
- Schumpeter, Joseph (1911), *The Theory of Economic Development*, Harvard University press.

- Seck, D. and El Nil, Y.H. (1993), "Financial Liberalisation in Africa", *World Development* 21 (11): 1867-1881.
- Serieux, J.E. (1997), "Financial Liberalisation, Financial Deepening and Savings: An Empirical Evaluation of the Experiences of Ghana and Kenya" PhD thesis, University of Toronto.
- Shaw, E.S. (1973), *Financial Deepening in Economic Development*, New York, Oxford University Press.
- Shleifer, Andrei and Summers, Lawrence (1988), "Breach of Trust in Hostile Take-overs", in Auerbach, ed., *Corporate Take-overs: Causes and Consequences*, University of Chicago Press: 33-36.
- Shiller, R.J. (1981), "Do stock Prices move Too Much to Be Justified by Subsequent Changes in Dividends"? *American Economic Review* 71: 421-36.
- Shiller, R.J. (1989), *Market Volatility*, Cambridge, Mass: MIT Press.
- Sims, C. (1972), "Money, Income and Causality", *American Economic Review* 62: 540-552.
- Singh, A. (1993), "Stock Market and Economic Development: Should Developing Countries Encourage Stock Markets"? *UNCTAD Review* (4): 1-28.
- Singh, A. (1997), "Stock Market, Financial Liberalisation and Economic Development", *Economic Journal* 107 (May): 771-82.
- Siregar, Miranda (1992), "Financial Liberalisation, Investment and Debt Allocation", Ph.D. Dissertation, Boston University.
- SA Financial Sector Forum, Annual Bulletin, (Various Issues).
- South Africa Reserve Bank (Annual Report), Various Issues.
- South Africa Financial Sector Forum Various Issues, Rivonia, South Africa.
- South-Africa Official Year Book, Various issues.

South African Reserve Bank, *Annual Economic Report*, Various Issues.

South African Reserve Bank, *Quarterly Bulletin* (Various Issues).

South Africa Financial Sector Forum, *Annual Bulletin*, Various Series.

Stiglitz, J.E. and Weiss, A. (1981), "Credit Rationing in Markets with Imperfect Information", *American Economic Review* 71(June): 393-410.

Stiglitz, J.E. (1989), "Financial markets and Development", *Oxford Review of Economic Policy* 5: 55-68.

Stiglitz, J.E. (1994), "The Role of State in Financial Markets", *Proceedings of the World Bank Annual Conference on Development Economics*, Washington.

Stiglitz, Joseph, E. (1992), "Banks Versus Markets as Mechanisms for Allocating and Coordinating Investment" in Roumasset, J. A. and Barr S. (ed), *The Economics of Cooperation: East Asian Development and the Case for Pro-market Intervention*, Boulder, 1992.

Stiglitz, J.E. (1994), "The Role of the State in Financial Markets", *Proceedings of the World Bank Annual Conference on Development Economics*: 19-52.

Stiglitz, J.E. (1998), "Knowledge For Development: Economic Science, Economic Policy and Economic Advise", Address to the World Bank's 10th Annual Bank Conference on Department Economics.

Stiglitz, J.E. (1999), "Lessons From the Global Financial Crisis", Lecture Given to Federal Reserve Bank of Chicago, 30 September.

Stiglitz, J.E and Uy, Mariton (1996) "Financial Markets, Public Policy and the East Asian Miracle", *The World Bank Research Observer* 11 (2).

Stock J. and Watson, M. (1988), "Testing for Common Trends" *Journal of The American Statistical Association* 83 (December): 1097-1107.

Swamy, G. (1994), "Kenya Structural Adjustment in the 1980s", *World Bank Policy Research Working Paper* No.1238.

- Taylor, L. (1983), *Structuralist Macroeconomics*, Basic Books Inc, New York.
- Temple, Jonathan (1999), "The New Growth Evidence", *Journal of Economic Literature* 37 (1): 112-56.
- Tommasi, M. (1999), "On high Inflation and the Allocation of Resources", *Journal of Monetary Economics* 44: 401-421.
- Thornton, J. (1990), "The Demand for Money in India: A Test of McKinnon's Complementarity Hypothesis", *Savings and Development* 14 (2): 153-159.
- Thornton, J. (1991), "The Financial Repression Paradigm: A Survey of Empirical Research", *Savings and Development* 15 (1): 5-18.
- Tobin, J. (1956), "The Interest Elasticity of Transaction's Demand for Cash". *Review of Economic Studies* 25: 65-86.
- Tobin, J. (1965), "Money and Economic Growth", *Econometrica* 33 (14): 671-684.
- Tutor, Eser (2002), "Inflation Targeting in Developing Countries and Its Applicability to the Turkish Economy" Unpublished M.A (Economics) Thesis, Virginia Polytechnic Institute and State University.
- URT (1986), "Economic Recovery Programme 1", Government Printer, Dar-es-salaam.
- Van Wijnbergen, S. (1983), "Credit Policy, Inflation and Growth in a Financially Repressed Economy", *Journal Development Economics* 13 (1-2): 45-65.
- Van Wijnbergen, S. (1983), "Interest Rate Management in LDCs", *Journal of Monetary Economics* 12 (3): 433-452.
- Vogel, R. and Buseu, S. (1976), "Inflation, Financial Repression and Capital Formation in Latin America", In Mckinnon, R.I. (ed), *Money and Finance in Economic Growth and Development*, Marcel Dekker Inc., New York.
- Villagomez, F.A. (1997), "Private Saving, Interest Rates and Liquidity Constraints in LDCs: Recent Evidence", *Applied Economics* 29: 607-615.

- Von Furstenberg, G.M., Green, J. and Jeong, J.H. (1986), "Tax and Spend, Or Spend and Tax?" *Review of Economics and Statistics* 68:179-188.
- Villanueva, D. and Mirakhor, A. (1990), "Strategies for Financial Reforms: Interest Rate Policies, Stabilisation and Bank Supervision in Developing Countries", *IMF Staff Papers* 37 (3): 509-536.
- Wade, R. (1999), "From Miracle to Cronyism in the Asian Crisis", *IDS Bulletin* 30 (1):
- Wakeford, Jeremy (2002), "Monetary and Exchange Rate Policy in South Africa", in Natrass et al (ed), *Macroeconomics: Theory and Policy in South Africa*, David Philip Publishers, Cape Town, South Africa.
- Wall, L.D and Peterson, P. (1996), "Bank's Responses to Building Regulatory Capital Requirements", *Federal Reserve Bank of Atlanta Economic Review*, March/April.
- Warman, F. and Thirlwall, A.P. (1994), "Interest Rates, Savings, Investment and Growth in Mexico 1960-1990: Test of the Financial Liberalisation Hypothesis", *The Journal of Development Studies* 30 (3): 629-649.
- Watson, P.K. (1992), "Savings, the Rate of Interest and Growth in a Small Open Economy: The Trinidad and Tobago Experience", *Social and Economic Studies* 41 (4): 1-24.
- Wiketye, E.J.M (2000), *Elements of Money and Banking: With Reference to the Tanzanian Economy*, Research, Information and Publications, Mzumbe.
- Williamson, S.D. (1986), "Costly Monitoring, Financial Intermediation and Equilibrium Credit Rationing", *Journal of Monetary Economics* 18 (September): 159-79.
- Williamson, J.G. (1968), "Personal savings in Developing Nations: An Inter-temporal Cross-section from Asia", *The Economic Record* 44 (June): 194-210.
- Williamson, J. and Mohar, M. (1998), "A survey of Financial Liberalisation" *Essays in International Finance*, Princeton University, No. 211 (November).

- Wood, Anthony (1993), "Financial Development and Economic Growth in Barbados, Causal Evidence" *Savings and Development* 17 (4): 379-390.
- Woolmer, K.J. (1977), "The Financial System and Economic Development in Nigeria, 1950-1971", in Newlyn, W.T.(ed), *The Financing of Economic Development*, Oxford: Clarendon Press.
- World Bank (1989), *World Development Report*, Washington D.C.
- World Bank (1992), *Kenya Financial Sector Adjustment Project*, Project Completion Report, December.
- World Bank (1993), *The East Asian Miracle: Economic Growth and Public Policy*, New York: Oxford University Press.
- Yusuf, S. and Peters, R.K. (1984), "Savings Behaviour and Its Implications for Domestic Resource Mobilisation: The case of Republic of Korea", World Bank Staff Working Paper, No.628, Washington DC, The World Bank.
- Ziorklui, S.Q. (2001), "Capital market Development and Growth in sub-Saharan Africa: The case of Tanzania, *African Economic Policy Discussion Paper* No. 79, Washington DC.

LIST OF APPENDICES

APPENDIX 1

Error Correction Model for Money demand function-General Model

KENYA: General Model for DM/P

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
constant	-0.0238	0.0479	-0.4980	0.6308	0.0268
DLM/P-1	0.8881	1.0425	0.8520	0.4164	0.0746
DLM/P-2	0.2243	0.2863	0.7840	0.4534	0.0639
DLM/P-3	-0.0131	0.2646	-0.0490	0.9616	0.0003
d-Pe	0.0037	0.0048	0.7570	0.4683	0.0599
d-Pe-1	-0.0048	0.0047	-1.0330	0.3286	0.1060
d-Pe-2	0.0059	0.0053	1.1130	0.2944	0.1211
d-Pe-3	-0.0045	0.0053	-0.8540	0.4151	0.0750
DLy	0.2376	0.7831	0.3030	0.7685	0.0101
DLy-1	0.2460	0.6482	0.3800	0.7131	0.0158
DLy-2	-0.5804	0.6643	-0.8740	0.4050	0.0782
DLy-3	0.4433	0.7342	0.6040	0.5609	0.0389
DLSd/Y	0.1885	0.1024	1.8410	0.0987	0.2737
DLS ^d /Y-1	0.0073	0.2530	0.0290	0.9776	0.0001
DLS ^d /Y-2	-0.0256	0.2106	-0.1210	0.9061	0.0016
DLS ^d /Y-3	-0.0880	0.1706	-0.5160	0.6183	0.0287
ECM1-1	-1.0175	1.0102	-1.0070	0.3401	0.1013

$R^2=0.7476$, $F(16, 9) = 1.6667$ (0.2206), $\delta=0.0811036$,

DW=2.41, RSS=0.059200.

Information criteria: SC= -3.95463, HQ= -4.54036; FPE= 0.01087

SOUTH AFRICA: General Model for DM/P

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	-0.0590	0.0173	-3.405	0.0272	0.7435
DLM/P-1	1.5874	0.5527	2.872	0.0454	0.6734
DLM/P-2	0.8209	0.2933	2.799	0.0489	0.6620
DLM/P-3	-0.2968	0.3665	-0.810	0.4634	0.1409
DLM/P-4	-0.1714	0.2405	-0.712	0.5155	0.1126
DLS ^d /Y	0.0213	0.0169	1.257	0.2771	0.2832
DLS ^d /Y-1	0.0109	0.0269	0.404	0.7070	0.0392
DLS ^d /Y-2	-0.0458	0.0327	-1.399	0.2343	0.3286
DLS ^d /Y-3	-0.0159	0.0281	-0.566	0.6018	0.0741
DLS ^d /Y-4	0.0269	0.0185	1.452	0.2201	0.3452
DLy	1.0559	0.5533	1.908	0.1290	0.4766
DLy-1	-1.3319	0.4989	-2.670	0.0558	0.6405
DLy-2	0.0060	0.5162	0.012	0.9913	0.0000
DLy-3	0.8375	0.4293	1.951	0.1229	0.4875
DLy-4	1.6864	0.5181	3.255	0.0312	0.7259
Dd-pe	-0.0033	0.0062	-0.532	0.623	0.0661
Dd-pe-1	-0.0036	0.0059	-0.613	0.5732	0.0858
Dd-pe-2	-0.0197	0.008	-2.449	0.0706	0.5998
Dd-pe-3	0.0063	0.0047	1.334	0.2532	0.3078
Dd-pe-4	-0.0075	0.0058	-1.281	0.2693	0.2911
ECM2-1	-1.3264	0.3302	-4.017	0.0159	0.8014

$R^2 = 0.969927$ $F(20, 4) = 6.4506$ [0.0415] $\delta = 0.0217811$ $DW = 1.54$

RSS = 0.001897669037 for 21 variables and 25 observations.

AR 1-2F (2, 2) = 0.69515 [0.5899]

ARCH 1 F(1, 2) = 0.0034102 [0.9587]

Normality X^2 (2) = 6.026 [0.0491]

RESET F(1, 3) = 4.7921 [0.1164]

TANZANIA: General Model for DM/P

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	0.0578	0.0896	0.645	0.5373	0.0494
DLM/P-1	0.1605	0.3364	0.477	0.646	0.0277
DLM/P-2	0.2537	0.3674	0.690	0.5095	0.0562
DLM/P-3	0.5115	0.3779	1.354	0.2128	0.1864
DLS ^d /Y	-0.1460	0.1520	-0.96	0.3650	0.1034
DLS ^d /Y-1	0.0576	0.1541	0.374	0.7184	0.0171
DLS ^d /Y-2	-0.0751	0.1592	-0.471	0.6499	0.0270
DLS ^d /Y-3	-0.0105	0.1464	-0.072	0.9444	0.0006
Dd-Pe	0.0038	0.0042	0.915	0.3870	0.0947
D(d-Pe) -1	0.0056	0.0046	1.221	0.2567	0.1572
D(d-Pe)-2	0.0044	0.0037	1.191	0.2678	0.1506
D(d-Pe)-3	0.0033	0.0030	1.068	0.3165	0.1249
DLy	0.1801	0.2299	0.784	0.4558	0.0713
DLy-1	-0.3216	0.2758	-1.166	0.2772	0.1452
DLy-2	-0.1143	0.2768	-0.413	0.6905	0.0209
DLy-3	-0.1372	0.2643	-0.519	0.6177	0.0326
ECM3-1	-0.4137	0.2345	-1.764	0.1157	0.2800

$R^2 = 0.658286$ $F(16, 8) = 0.96321$ [0.5513] $\delta = 0.104598$ $DW = 1.62$

RSS = 0.08752579361 for 17 variables and 25 observations.

AR 1- 2F (2, 6) = 0.60519 [0.5762]

ARCH 1 F(1, 6) = 0.029087 [0.8702]

Normality X^2 (2) = 1.7676 [0.4132]

RESET F(1, 7) = 0.0032251 [0.9563]

APPENDIX 2

Error Correction Model for Savings function (Sd/Y)-General Model

KENYA: General Model for Sd/Y

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	-0.0560	0.0943	-0.5930	0.6131	0.1497
DS ^d /Y-1	0.2860	0.6299	0.4540	0.6944	0.0934
DLM/P-1	-0.5020	1.3683	-0.3670	0.7489	0.0631
DLM/P-2	0.3215	0.8538	0.3770	0.7427	0.0662
DLM/P-3	0.3983	1.1896	0.3350	0.7696	0.0531
DLy	-24.6260	51.0760	-0.4820	0.6773	0.1041
DLy-1	-1.8772	42.3950	-0.0440	0.9688	0.0010
DLy-2	-6.1803	39.0630	-0.1580	0.8888	0.0124
DLy-3	33.6370	56.7950	0.5920	0.6137	0.1492
DLDR	12.4840	31.0100	0.4030	0.7262	0.0750
DLDR-1	-5.3538	36.8390	-0.1450	0.8978	0.0105
DLDR-2	15.0750	25.7260	0.5860	0.6172	0.1465
DLDR-3	40.3000	48.1990	0.8360	0.4911	0.2590
DS ^f /Y	-4.7635	2.6047	-1.8290	0.2089	0.6258
DS ^f /Y-1	2.4314	3.9474	0.6160	0.6007	0.1594
DS ^f /Y-2	0.4320	1.8768	0.2300	0.8394	0.0258
DS ^f /Y-3	1.0293	2.2998	0.4480	0.6983	0.0910
DyR	0.0021	0.0182	0.1130	0.9202	0.0064
DyR-1	0.2478	0.5096	0.4860	0.6749	0.1057
DyR-2	0.2709	0.3961	0.6840	0.5646	0.1896
DyR-3	0.3348	0.5335	0.6280	0.5944	0.1645
ECM1-1	-0.6842	0.8531	-0.8020	0.5067	0.2433

R²=0.96, F(21, 2) = 2.6689 (0.3080), δ =0.172358,

DW=1.06, RSS=0.05941433.

Information criteria: SC= -3.08806, HQ= -3.88145; FPE= 0.0569387

SOUTH AFRICA: General Model for Sd/Y

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	0.1480	0.0505	2.929	0.0263	0.5885
DLS ^d /Y-1	-0.2286	0.2404	-0.951	0.3783	0.1310
DLS ^d /Y-2	-0.1824	0.1379	-1.323	0.2341	0.2258
DLM/P	2.3223	0.6718	3.457	0.0135	0.6658
DLM/P-1	-2.3385	0.6567	-3.561	0.0119	0.6788
DLM/P-2	-1.0410	1.0095	-1.031	0.3422	0.1505
DLy	-94.835	38.278	-2.478	0.048	0.5057
DLy-1	-0.8542	46.977	-0.018	0.9861	0.0001
DLy-2	102.8	36.901	2.786	0.0318	0.564
S ^f /Y	-3.2277	0.3291	-9.809	0.0001	0.9413
S ^f /Y-1	0.6317	1.0449	0.605	0.5676	0.0574
S ^f /Y-2	-0.5376	0.8963	-0.6	0.5706	0.0566
DLDR	-0.2527	0.1518	-1.664	0.1471	0.3159
DLDR-1	-0.69	0.1751	-3.94	0.0076	0.7213
DLDR-2	-0.7311	0.2225	-3.287	0.0167	0.6429
DyR	0.9632	0.3696	2.606	0.0403	0.5309
DyR-1	0.9453	0.3528	2.679	0.0366	0.5447
DyR-2	-0.0261	0.0218	-1.199	0.2758	0.1932
ECM-1	-0.1948	0.9233	-2.109	0.0794	0.4258

$R^2 = 0.995375$ $F(18, 6) = 71.731$ [0.0000] $\delta = 0.0795273$ $DW = 2.69$

RSS = 0.03794759543 for 19 variables and 25 observations.

AR 1- 2F (2, 4) = 0.59377 [0.5946]

ARCH 1 F (1, 4) = 0.12888 [0.7377]

Normality X^2 (2) = 4.3053 [0.1162]

RESET F(1, 5) = 0.0017065 [0.9686]

TANZANIA: General Model for Sd/Y

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	0.1887	0.1517	1.244	0.26	0.2049
DLS ^d /Y-1	0.5158	0.5174	0.997	0.3573	0.1421
DLS ^d /Y-2	0.1754	0.6357	0.276	0.7919	0.0125
YR	-0.0414	0.0404	-1.023	0.3458	0.1485
YR-1	-0.0497	0.0744	-0.668	0.5288	0.0693
YR-2	-0.0078	0.0454	-0.172	0.8691	0.0049
DLM/P	-1.4317	1.0362	-1.382	0.2163	0.2414
DLM/P-1	0.6312	1.5682	0.403	0.7013	0.0263
DLM/P-2	-0.185	1.1198	-0.165	0.8742	0.0045
DS ^f /Y	-0.086	0.0318	-2.707	0.0353	0.5498
DS ^f /Y-1	0.0418	0.0635	0.658	0.5348	0.0674
DS ^f /Y-2	0.0938	0.0995	0.942	0.3823	0.1289
DLDR	-0.6816	2.5023	-0.272	0.7944	0.0122
DLDR-1	-1.4454	3.1376	-0.461	0.6613	0.0342
DLDR-2	0.7605	2.5427	0.299	0.7749	0.0147
DLy	5.4514	5.1398	1.061	0.3297	0.1579
DLy-1	5.8868	9.3968	0.626	0.5541	0.0614
DLy-2	1.0124	5.6437	0.179	0.8635	0.0053
ECM-1	-0.5664	0.627	-0.903	0.4011	0.1197

$R^2 = 0.767371$ $F(18, 6) = 1.0996$ [0.4899] $\delta = 0.210753$ $DW = 2.26$

RSS = 0.2664999562 for 19 variables and 25 observations.

AR 1- 2F (2, 4) = 0.64313 [0.5726]

ARCH 1 F (1, 4) = 0.025784 [0.8802]

Normality X^2 (2) = 4.468 [0.1071]

RESET F(1, 5) = 1.0232 [0.3582]

APPENDIX 3

Error Correction Model for Financial Deepening function-General Model

KENYA: General Model for Sd/Y

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	-0.0096	0.2081	-0.0460	0.9653	0.0005
DLm-1	0.1965	1.6963	0.1160	0.9134	0.0033
DLm-2	0.8319	1.9544	0.4260	0.6923	0.0433
DLm-3	-0.4658	1.2904	-0.3610	0.7364	0.0315
DLm-4	-0.1887	0.7311	-0.2580	0.8091	0.0164
DLd	0.0603	0.5751	0.1050	0.9215	0.0027
DLd -1	0.5775	0.7798	0.7410	0.5001	0.1206
DLd-2	-0.7587	0.5158	-1.4710	0.2153	0.3510
DLd-3	0.2614	0.6699	0.3900	0.7163	0.0367
DLd-4	0.0385	0.4966	0.0780	0.9419	0.0015
DLy	0.8025	0.8508	0.9430	0.3990	0.1820
DLy-1	0.0801	1.2480	0.0640	0.9519	0.0010
DLy-2	-1.1667	1.9025	-0.6120	0.5734	0.0857
DLy-3	0.2758	1.5761	0.1750	0.8696	0.0076
DLy-4	-0.0700	1.1026	-0.0630	0.9524	0.0010
DLP ^e	-0.0040	0.0222	-0.1780	0.8676	0.0078
DLP ^e -1	0.0230	0.0261	0.8840	0.4267	0.1634
DLP ^e - 2	0.0488	0.0242	2.0160	0.1140	0.5039
DLP ^e - 3	0.0192	0.0290	0.6630	0.5435	0.0990
DLP ^e - 4	-0.0065	0.0241	-0.2680	0.8017	0.0177
ECM -1	-0.2918	1.0241	-0.2850	0.7899	0.0199

$R^2 = 0.866737$ $F(20, 4) = 1.3008$ [0.4419] $\delta = 0.0881362$ $DW = 2.14$

RSS = 0.03107197785 for 21 variables and 25 observations

AR 1- 2F (2, 2) = 0.094754 [0.9134]

ARCH 1F (1, 2) = 0.00012939 [0.9920]

Normality $X^2(2)$ = 4.8906 [0.0867]

RESET $F(1, 3)$ = 0.16933 [0.7083]

SOUTH AFRICA: General Model for Sd/Y

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	0.0158	0.0326	0.485	0.6606	0.0728
DLm-1	0.4465	0.503	0.888	0.4401	0.208
DLm-2	-0.1818	0.5886	-0.309	0.7777	0.0308
DLm-3	0.6794	0.8863	0.767	0.4991	0.1638
DLm-4	-0.1291	0.5458	-0.237	0.8282	0.0183
DLd	0.0095	0.1096	0.086	0.9367	0.0025
DLd-1	0.0757	0.1877	0.403	0.7138	0.0514
DLd-2	-0.0597	0.1388	-0.43	0.6960	0.0581
DLd-3	-0.0600	0.1208	-0.497	0.6533	0.0761
DLd-4	-0.1310	0.1143	-1.146	0.3349	0.3045
DLP ^e	0.0597	0.1723	0.346	0.752	0.0384
DLP ^e -1	0.0761	0.1065	0.714	0.5266	0.1453
DLP ^e -2	-0.0061	0.1172	-0.052	0.9615	0.0009
DLP ^e -3	0.0495	0.1016	0.487	0.6599	0.0732
DLP ^e -4	-0.1165	0.0877	-1.329	0.276	0.3704
DLy	1.2185	0.998	1.221	0.3093	0.332
DLy-1	-0.5338	0.8141	-0.656	0.5589	0.1253
DLy-2	-0.9161	1.4668	-0.625	0.5765	0.1151
DLy-3	-0.6999	1.1134	-0.629	0.5742	0.1164
DLy -4	0.747	0.8411	0.888	0.4399	0.2082
ECM-1	-0.8232	0.6423	-1.282	0.29	0.3538

R² = 0.913523 F (20, 3) = 1.5846 [0.3965] δ = 0.042463 DW = 2.30

RSS = 0.005409321463 for 21 variables and 24 observations

Normality X² (2) = 1.5453 [0.4618]

RESET F(1, 2) = 0.11408 [0.7677]

TANZANIA: General Model for DLm

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	0.0095	0.0419	0.227	0.8351	0.0169
DLm-1	0.0857	0.6367	0.135	0.9014	0.0060
DLm-2	0.3339	0.3860	0.865	0.4507	0.1996
DLm-3	0.7337	0.3747	1.958	0.1451	0.5610
DLm-4	0.7233	0.4353	1.662	0.1952	0.4792
DLy	0.3555	0.2534	1.403	0.2552	0.3962
DLy-1	-0.7485	0.6227	-1.202	0.3156	0.3250
DLy-2	-0.8863	0.7335	-1.208	0.3135	0.3273
DLy-3	0.0382	0.7079	0.054	0.9603	0.0010
DLy-4	0.1570	0.7575	0.207	0.8491	0.0141
DLd	0.1172	0.1878	0.624	0.5768	0.1149
DLd-1	0.2502	0.2826	0.885	0.4412	0.2072
DLd-2	0.3564	0.6604	0.540	0.6269	0.0885
DLd-3	0.3881	0.9250	0.420	0.7030	0.0554
DLd-4	-0.4849	0.8170	-0.593	0.5946	0.1051
DP ^e	-0.0034	0.0063	-0.543	0.6246	0.0896
DP ^e -1	-0.0156	0.0076	-2.044	0.1335	0.5821
DP ^e -2	-0.0116	0.0053	-2.184	0.1169	0.6139
DP ^e -3	-0.0045	0.0045	-1.006	0.3884	0.2524
DP ^e -4	-0.0007	0.0036	-0.195	0.8581	0.0125
ECM-1	-0.8650	0.3502	-2.470	0.0901	0.6704

 $R^2 = 0.91623$ $F(20, 3) = 1.6406$ $[0.3834]$ $\delta = 0.0810414$ $DW = 1.25$

RSS = 0.01970314213 for 21 variables and 25 observations

AR 1- 1F (1, 2) = 3.7325 [0.1931]

Normality $X^2(2) = 7.7805$ [0.0204]

RESET F(1, 2) = 1.9287 [0.2993]

APPENDIX 4

Error Correction Model for Investment efficiency-General Model

KENYA: General Model for IOCR

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	28.7280	33.1580	0.8660	0.4150	0.0969
DIOCR-1	0.9211	1.6496	0.5580	0.5940	0.0426
DIOCR-2	1.2625	1.7114	0.7380	0.4847	0.0721
DIOCR-3	1.0253	1.3366	0.7670	0.4681	0.0776
d-Pe	-3.8201	4.4597	-0.8570	0.4200	0.0949
(d-Pe)-1	-10.9000	5.6155	-1.9410	0.0934	0.3499
(d-Pe)-2	-13.9000	4.9479	-2.8090	0.0262	0.5300
(d-Pe)-3	-4.9267	3.5710	-1.3800	0.2102	0.2138
DLRexr	184.4200	301.9100	0.6110	0.5606	0.0506
DLRexr -1	-120.2500	338.9200	-0.3550	0.7332	0.0177
DLRexr -2	-224.2200	342.9300	-0.6540	0.5341	0.0576
DLRexr-3	220.3700	340.7500	0.6470	0.5384	0.0564
DS ^f /Y	506.2400	943.5400	0.5370	0.6082	0.0395
DS ^f /Y-1	-767.4200	974.0000	-0.7880	0.4566	0.0815
DS ^f /Y-2	-652.3900	924.2000	-0.7060	0.5031	0.0665
DS ^f /Y-3	-1070.5000	851.5400	-1.2570	0.2490	0.1842
ECM1-1	-1.1209	1.2576	-0.8910	0.4023	0.1019

R² = 0.840681 F (16, 7) = 2.3086 [0.1328] δ = 87.9954 DW = 1.50

RSS = 54202.30974 for 17 variables and 24 observations

AR 1- 2F (2, 5) = 0.29826 [0.7545]

ARCH 1 F (1, 5) = 0.39666 [0.5565]

Normality X² (2) = 2.024 [0.3635]

RESET F(1, 6) = 39.889 [0.0007]

TANZANIA: General Model for IOCR

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	-1.009	1.3495	-0.748	0.4829	0.0852
DIOCR-1	-0.9874	0.347	-2.845	0.0294	0.5743
DIOCR-2	-1.0427	0.3193	-3.266	0.0171	0.64
DIOCR-3	-2.5667	0.4012	-6.398	0.0007	0.8722
Dd-Pe	0.1858	0.0885	2.099	0.0805	0.4235
(Dd-Pe)-1	-0.0786	0.143	-0.55	0.6022	0.048
(Dd-Pe)-2	0.026	0.1177	0.221	0.8323	0.0081
(Dd-Pe)-3	0.011	0.0879	0.126	0.9042	0.0026
DLRexr	7.432	5.3054	1.401	0.2108	0.2465
DLRexr-1	12.097	6.0096	2.013	0.0908	0.4031
DLRexr-2	-12.482	6.0103	-2.077	0.0831	0.4182
DLRexr-3	-25.831	5.3245	-4.851	0.0028	0.7969
DS ^f /Y	-2.842	0.9524	-2.984	0.0245	0.5975
DS ^f /Y-1	1.6783	1.2574	1.335	0.2304	0.2289
DS ^f /Y-2	3.1908	1.9002	1.679	0.1441	0.3197
DS ^f /Y-3	-31.589	2.2839	-13.831	0	0.9696
ECM-1	-0.5584	0.3508	-1.592	0.1625	0.297

R² = 0.997034 F(16, 6) = 126.07 [0.0000] δ = 2.66984 DW = 2.83

RSS = 42.76818136 for 17 variables and 23 observations

AR 1- 2F(2, 4) = 2.1298 [0.2345]

ARCH 1 F(1, 4) = 0.030205 [0.8705]

Normality X²(2) = 3.7703 [0.1518]

RESET F(1, 5) = 0.00054699 [0.9822]

SOUTH AFRICA: General Model for IOCR

Variable	Coefficient	Standard Error	T-Value	T-Probability	Partial R ²
Constant	-6.9143	27.027	-0.256	0.8146	0.0214
DIOCR-1	-0.1762	0.4623	-0.381	0.7285	0.0462
DIOCR-2	-0.3142	0.5314	-0.591	0.596	0.1044
DIOCR-3	0.0453	0.3173	0.143	0.8956	0.0067
DIOCR-4	-0.1139	0.315	-0.362	0.7416	0.0418
Dd-Pe	20.73	18.838	1.100	0.3515	0.2876
(Dd-Pe)-1	0.0847	9.0295	0.009	0.9931	0.0000
(Dd-Pe)-2	-1.9419	11.214	-0.173	0.8735	0.0099
(Dd-Pe)-3	1.5424	8.3938	0.184	0.8659	0.0111
(Dd-Pe)-4	-2.5502	8.2974	-0.307	0.7787	0.0305
S ^f /Y	107.26	214.14	0.501	0.6509	0.0772
S ^f /Y-1	-387.57	630.18	-0.615	0.5820	0.112
S ^f /Y-2	-1358.9	1240.7	-1.095	0.3535	0.2856
S ^f /Y-3	-1285	1472.4	-0.873	0.4470	0.2025
S ^f /Y-4	-1465.6	1359.1	-1.078	0.3599	0.2793
DLRexr	-484.92	459.89	-1.054	0.3691	0.2704
DLRexr-1	-760.08	745.44	-1.020	0.383	0.2574
DLRexr-2	24.089	433.21	0.056	0.9592	0.0010
DLRexr-3	-113.35	370.3	-0.306	0.7795	0.0303
DLRexr-4	492.07	421.63	1.167	0.3275	0.3123
ECM-1	-0.388	0.5688	-0.682	0.5441	0.1343

R² = 0.889245 F (20, 3) = 1.2043 [0.5072] δ = 60.6723 DW = 1.89

RSS = 11043.37347 for 21 variables and 24 observations

Normality X² (2) = 0.053108 [0.9738]

RESET F(1, 2) = 4.8807 [0.1578]

APPENDIX 5
KENYA: SELECTED MACROECONOMIC DATA

Year	CPI	GDP (Millions)	M2 (Millions)	Deposit Rate (%)	Lending Rate (%)	Discount Rate (%)	Population (Millions)	GFCF Millions	FOREX Shs./US\$
1969	3.5	10416	2748	3.50	-	6.50	10.88	1875	7.14
1970	3.6	11499	3505	3.50	-	6.50	11.23	2254	7.14
1971	3.7	12845	3769	3.50	9.00	6.50	11.67	2884	7.14
1972	3.9	13776	4295	3.50	9.00	6.50	12.07	3302	7.14
1973	4.3	15790	5356	3.50	9.00	6.50	12.48	3645	7.02
1974	5.1	18776	5819	4.32	9.50	6.50	12.91	4075	7.14
1975	6.0	21140	6814	5.13	10.00	7.00	13.41	4837	7.34
1976	6.7	25562	8455	5.13	10.00	7.00	13.85	5808	8.37
1977	7.7	32699	12527	5.13	10.00	6.50	14.35	7800	8.28
1978	9.0	35601	14155	5.13	10.00	7.50	14.88	10280	7.73
1979	9.7	39543	16011	5.13	10.00	7.50	15.33	10809	7.48
1980	11.1	44648	16136	5.75	10.58	8.00	16.67	12451	7.42
1981	12.4	51641	18281	8.85	12.42	12.50	17.34	14508	9.05
1982	14.9	58214	21370	12.20	14.50	15.00	18.04	13364	10.92
1983	16.7	66218	22426	13.27	15.83	15.00	18.77	14349	13.31
1984	18.4	72550	25293	11.77	14.42	12.50	19.54	16143	14.41
1985	20.8	83744	26898	11.25	14.00	12.50	20.33	17631	16.43
1986	21.8	102299	35694	11.25	14.00	12.50	21.16	23064	16.23
1987	23.4	112965	39667	10.31	14.00	12.50	22.94	25735	16.45
1988	26.0	151194	42856	10.33	15.00	16.02	23.88	30359	17.75
1989	29.4	171589	48393	12.00	17.25	16.50	24.87	33156	20.57
1990	34.0	195536	58099	13.67	18.75	19.43	24.03	40560	22.92
1991	40.7	221250	69471	-	19.00	20.27	25.91	42671	27.51
1992	52.7	264967	96579	-	21.07	20.46	25.70	43777	32.22
1993	76.9	333613	123654	-	29.99	45.50	28.11	56505	58.00
1994	99.2	400722	162547	-	36.24	21.50	29.29	75616	56.05
1995	100.0	465653	202853	13.60	28.80	24.50	30.52	99497	51.43
1996	108.8	527967	254395	17.59	33.79	26.88	31.80	104469	57.12
1997	121.9	623354	301924	16.72	30.25	32.27	28.41	109870	58.73
1998	129.0	692120	309707	18.40	29.49	17.07	29.34	113858	60.37
1999	133.8	748925	328293	9.55	22.38	26.46	30.03	113215	70.33
2000	142.1	788917	343019	8.10	22.34	19.47	30.67	116555	76.18
2001	143.2	-	351565	6.64	19.67	16.81	31.29	-	78.56

Source: Compiled from International Financial Statistics Yearbook

- Data Not Available

NOTE

- i) CPI = Consumer price Index (1995=100)
- ii) GDP = Gross Domestic Product (Millions of Kenya Shillings)
- iii) M2 = Money plus Quasi-Money (Millions of Shillings)
- iv) GFCF = Gross fixed capital formation (Millions)
- v) FOREX = Exchange Rate (Kenya-Shillings per US Dollar- Period Average)

APPENDIX 6
SOUTH AFRICA: SELECTED MACROECONOMIC DATA

Year	CPI	GDP (Millions)	M2 (Millions)	Deposit Rate (%)	Lending Rate (%)	Discount Rate (%)	Population (Millions)	GFCF Millions	FOREX R/US\$
1969	5.20	-	7132	-	8.00	5.50	21.88	2559	0.71429
1970	5.40	-	7802	-	8.17	5.50	22.47	3085	0.71429
1971	5.80	-	8459	-	8.83	6.50	23.03	3605	0.71522
1972	6.10	15535	9944	-	8.79	6.00	23.67	4176	0.76873
1973	6.70	19218	12192	-	8.00	3.78	24.30	4885	0.69396
1974	7.50	23690	14214	-	10.70	6.48	24.92	5945	0.67948
1975	8.50	26646	16968	-	11.79	7.42	25.47	7846	0.73951
1976	9.50	30020	18471	-	12.25	8.28	26.13	9046	0.86957
1977	10.50	33263	20341	8.00	12.50	8.41	26.68	9312	0.86957
1978	11.60	38247	23597	7.67	12.13	7.87	27.30	10087	0.86957
1979	13.10	45772	27561	6.00	10.00	4.70	27.67	12015	0.84202
1980	15.00	60328	33842	5.54	9.50	6.54	28.28	16040	0.77883
1981	17.20	71080	39661	8.19	14.00	14.54	28.90	19738	0.87758
1982	19.70	80531	45010	13.00	19.33	14.35	29.54	22459	1.08582
1983	22.20	91457	51220	13.71	16.67	17.75	31.93	24498	1.1141
1984	24.80	107221	61343	18.29	22.33	20.75	32.25	26209	2.47528
1985	28.80	127598	70293	17.02	21.50	13.00	33.04	28715	2.22868
1986	34.10	149395	76466	10.98	14.33	9.50	33.83	28992	2.28503
1987	39.60	174647	91384	8.70	12.50	9.50	34.63	30850	2.03603
1988	44.70	209613	116031	13.54	15.33	14.50	35.42	39717	2.27347
1989	51.30	251676	139969	18.13	19.83	18.00	36.24	49585	2.62268
1990	58.70	289816	155933	18.86	21.00	18.00	37.07	54113	2.58732
1991	67.60	331980	-	17.30	20.31	17.00	38.01	55285	2.76132
1992	77.00	372225	187840	13.78	18.91	14.00	38.82	56711	2.85201
1993	84.50	426133	199692	11.50	16.16	12.00	39.63	59304	3.26774
1994	92.10	482120	236268	11.11	15.58	13.00	40.44	69226	3.5508
1995	100.00	548100	274145	13.54	17.90	15.00	41.24	81926	3.62709
1996	107.40	618417	313290	14.91	19.52	17.00	42.39	93602	4.29935
1997	116.50	683730	369097	15.38	20.00	16.00	43.34	103343	4.60796
1998	124.60	735504	419490	16.50	21.79	19.32	42.13	117026	5.52828
1999	131.10	802840	465244	12.24	18.00	12.00	43.05	-	6.10948
2000	138.10	887795	498813	9.20	14.50	12.00	43.69	-	6.93983
2001	145.90	975196	581928	9.37	13.77	9.50	44.33	-	8.60918

Source: Compiled from International Financial Statistics Yearbook

- Data Not Available

NOTE

- i) CPI = Consumer price Index (1995=100)
 ii) GDP = GDP Volume 1990 prices
 iii) M2 = Money plus Quasi-Money (Millions of Rand)
 iv) GFCF = Gross fixed capital formation (Millions)
 v) FOREX = Exchange Rate (Rand per US Dollar- Period Average)

APPENDIX 7
TANZANIA: SELECTED MACROECONOMIC DATA

Year	CPI	GDP (Millions)	M2 (Billions)	Deposit Rate (%)	Lending Rate (%)	Discount Rate (%)	Population (Millions)	GFCF Millions	FOREX Shs./US\$
1969	0.60	8270	1.98	-	-	-	12.93	1210	7.14
1970	0.60	9170	2.22	-	-	-	13.27	1880	7.14
1971	0.60	9810	2.62	-	-	-	13.63	2370	7.14
1972	0.70	11170	3.09	-	-	4.27	14.00	2360	7.14
1973	0.70	13100	3.62	-	-	4.27	14.37	2600	7.02
1974	0.90	15990	4.46	4.00	-	4.77	14.76	3030	7.13
1975	1.10	19010	5.55	4.00	-	4.77	15.31	3540	7.37
1976	1.20	24420	6.95	4.00	-	4.77	16.41	5160	8.38
1977	1.30	28870	8.35	4.00	-	4.77	16.92	6660	8.29
1978	1.40	32170	9.4	4.00	6.54	4.77	17.44	7330	7.71
1979	1.60	36280	13.81	4.00	11.50	4.77	17.98	8590	8.22
1980	2.00	42120	17.52	4.00	11.50	4.77	18.58	8630	8.20
1981	2.60	49100	20.69	4.00	12.00	4.00	19.17	10620	8.28
1982	3.30	61930	24.73	4.00	12.00	4.00	19.78	14620	9.28
1983	4.20	68520	29.13	4.00	13.00	4.00	20.41	11900	11.14
1984	5.70	85390	30.2	4.00	13.00	4.00	21.06	15060	15.29
1985	7.60	112210	39.34	4.50	12.29	5	21.73	18970	17.47
1986	10.10	148390	50.31	8.50	18.50	8.00	22.46	35350	32.70
1987	13.10	329490	66.44	15.75	27.50	12.50	23.22	71060	64.26
1988	17.20	506430	88.25	17.46	29.63	14.50	24.00	81450	99.29
1989	21.70	633750	116.54	17.00	31.00	15.50	24.80	112210	143.38
1990	29.50	830690	165.33	-	-	-	25.63	213980	195.06
1991	37.90	1086270	215.06	-	-	-	26.36	282430	219.16
1992	46.20	1369870	302.36	-	-	14.5	27.30	369370	297.71
1993	57.90	1725540	420.95	-	31.00	14.50	28.25	429550	405.27
1994	77.00	2298890	569.74	-	39.00	67.50	27.49	561820	509.63
1995	100.00	3020500	757.81	24.63	42.83	47.9	28.28	591940	574.76
1996	121.00	3767640	821.5	13.59	33.97	19	29.09	620600	579.98
1997	140.40	4703460	927.07	7.83	26.27	16.2	33.46	692400	612.12
1998	158.00	5571640	1026.98	7.75	22.89	17.6	34.29	892700	664.67
1999	170.90	6432910	1217.53	7.75	21.89	20.20	35.12	989340	744.76
2000	181.00	7225690	1397.69	7.39	21.58	10.70	35.97	1266680	800.41
2001	190.30	-	1636.73	4.81	20.26	8.70	-	-	876.41

SOURCE: Compiled from International Financial Statistics Yearbook.

- Data Not Available

NOTE:

i) CPI = Consumer price Index (1995=100)

ii) GDP = GDP, production based (Millions)

iii) M2 = Money plus Quasi-Money (Billions of Shillings)

iv) GFCF = Gross fixed capital formation (Millions)

v) FOREX = Exchange Rate (Official Rate - T-shillings per US Dollar- Period Average)